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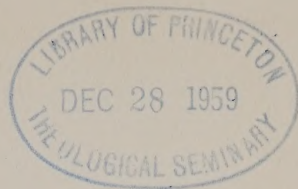






*THE ANATOMY OF THE WORLD*





# *The Anatomy of the World*

*RELATIONS BETWEEN NATURAL AND  
MORAL LAW FROM DONNE TO POPE*

Michael Macklem

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*To*  
**Arthur Edward Barker**







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*April 3, 1957*



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Drawings used by Burnet to explain the Flood (adapted from his *Theory of the Earth*. London, 1684)

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An Orrery built by Thomas Wright in 1731 (from Joseph Harris, *The Description and Use of the Globes*. London, 1738)

*PART ONE · PARADISE LOST*







## *The Sacred Theory of the Earth*

IN 1611, Donne commemorated the death of Elizabeth Drury in an elaborate and moving elegy. The poem is an anatomy not only of man but also of the world, including within its poetic range the state of man, the earth, and the heavens. Each is symbolized by the “untimely death of Mistris Elizabeth Drury,” by occasion of which the “frailty and the decay of this whole World is represented.”

Shée, shée is dead; shée's dead: when thou  
knowest this,  
Thou knowest how poore a trifling thing man is.<sup>1</sup>

At the same time, her death signifies the “fragmentary rubbishge”<sup>2</sup> of the greater earth, which is “Quite out of joynt, almost created lame.”

Shée, shée is dead; shée's dead: when thou  
knowst this,  
Thou knowst how lame a cripple this world is.<sup>3</sup>

Finally, it signifies the disorder of the heavens:

The Element of fire is quite put out;  
The Sun is lost, and th' earth, and no mans wit  
Can well direct him where to looke for it.  
And freely men confesse that this world's spent,  
When in the Planets, and the Firmament  
They seeke so many new; they see that this  
Is crumbled out againe to his Atomies.  
'Tis all in peeces, all cohaerence gone;  
All just supply, and all Relation. . . .<sup>4</sup>

## THE ANATOMY OF THE WORLD

The *Essay on Man*, published in 1733, is an account, like the *Anatomie of the World*, of natural and moral evil. Pope's account, however, differs sharply from Donne's.

Cease then, nor ORDER Imperfection name:  
Our proper bliss depends on what we blame.

. . . . .

All Nature is but Art, unknown to thee;  
All Chance, Direction, which thou canst not see;  
All Discord, Harmony, not understood;  
All partial Evil, universal Good:  
And, spite of Pride, in erring Reason's spite,  
One truth is clear, "Whatever is, is RIGHT." <sup>5</sup>

This argument is applied to the moral as well as to the natural world:

The gen'ral ORDER, since the whole began,  
Is kept in Nature, and is kept in Man. <sup>6</sup>

If Pope's *Essay* requires a gloss it could be supplied from any one of a number of contemporary handbooks. George Turnbull, in a treatise on moral philosophy published in 1740, states the case with typical simplicity and directness: "*what I think I have proved, by thus endeavouring to account for moral as for natural things, amounts briefly to this, 'That order is kept in man, as well as in the other parts of nature within our observation.'*" <sup>7</sup>

Both Donne and Pope were working within established schemes of belief. The prevailing assumptions within each were controlled by a theory of law and of the relationship between law and the natural and moral agent. For Donne this relationship is productive of disorder in both man and the world; for Pope it is productive of order. The difference is not simply that between affirmative and negative answers to the question of the existence of evil. It is rather that between a conception of evil as sin or the consequence of sin and a conception of evil as a condition of existence. <sup>8</sup>

The supposition, inherited by the seventeenth century, that both material and moral evil are derivatives of sin was established in medieval commentaries on the Fall of man and the curse on the

## THE SACRED THEORY OF THE EARTH

earth. At their creation, it was believed, the natural and moral worlds represented the order of divine law. Disorder originated in original sin. In the Fall, an act of disobedience to divine law, the moral estate of man was committed to disorder. Natural disorder originated in the curse, by which the disorder of sin was introduced into the earth.<sup>9</sup>

17. And unto Adam he [God] said, Because thou hast hearkened unto the voice of thy wife, and hast eaten of the tree, of which I commanded thee, saying, Thou shalt not eat of it: cursed *is* the ground for thy sake; in sorrow shalt thou eat *of* it all the days of thy life; 18. Thorns also and thistles shall it bring forth to thee; and thou shalt eat the herb of the field; 19. In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it wast thou taken: for dust thou *art*, and unto dust shalt thou return.<sup>10</sup>

This belief is profusely illustrated in the vernacular literature of the seventeenth century.<sup>11</sup> It is represented in epic projection in *Paradise Lost*, in which Milton gives a complete poetic account of its meaning and implications.

The account begins with a picture of the original order of man and the earth in the state of innocence before the Fall. Eden is an emblem of the unfallen earth, Adam and Eve a composite representation of unfallen man. The order of the unfallen state, under law, is suggested by their marriage, for which "heav'nly Quires" sing the "Hymenaeon."<sup>12</sup> The Fall, as Milton presents it, is a repudiation of law.

For Understanding rul'd not, and the Will  
Heard not her lore, both in subjection now  
To sensual Appetite, who from beneath  
Usurping over sovran Reason claim'd  
Superior sway. . . .<sup>13</sup>

The effects of sin are both moral and material: the sin of Adam commits both man and the earth to a state of disorder. In the divine sentence the penalty of submission, of sorrow in conception, and of pain in childbirth, is imposed on woman; on man is imposed the penalty of labor:

Curs'd is the ground for thy sake, thou in  
 Shalt eat thereof all the days of thy Life;  
 Thorns also and Thistles it shall bring thee  
 Unbid. . . .<sup>14</sup>

The Sun

Had first his precept so to move, so shine,  
As might affect the Earth with cold and heat  
Scarce tollerable, and from the North to call  
Decrepit Winter, from the South to bring  
Solstitial summers heat.

This tradition of belief was given elaborate and conclusive rationalization by Thomas Burnet in his treatise on the *Sacred Theory of the Earth*, the first two books of which were published in Latin in 1681 and in English in 1684.<sup>18</sup> Burnet, who had been a Fellow of Christ's College, Cambridge, became Master of the Charterhouse in 1685 and was appointed Chaplain-in-Ordinary to the King after the revolution of 1688. His position in the Church justified his consideration in 1694 as successor to John Tillotson in the primacy, but the publication in 1692 of *Archaeologiae Philosophicae*, in which Burnet attempted to reconcile his theory with the account of the creation and the Flood in *Genesis*, had made his orthodoxy doubtful, and he was unsuccessful. In the *Sacred Theory* Burnet reformulated the accepted doctrine that the fallen earth is the natural estate of sin. Specifically, he suggested that the characters of terrestrial disorder are mountains and

seas.<sup>19</sup> Burnet's theory of mountains is a point of division. In the *Sacred Theory* Burnet restated the traditional conception of the earth in its most literal form. In the replies, published between 1685 and 1700, Burnet's formulation was questioned in the light of radically new presuppositions which indicate the inception of a new tradition of belief.<sup>20</sup>

In the *Sacred Theory* Burnet's purpose is to explain the disorder of the earth as he assumes it to be. He begins by examining the accepted theories of the Flood, in which it is supposed that the land and sea were divided at the creation. He calculates that, on this supposition, eight oceans of water would be required to cover the earth to a depth of fifteen cubits. None of the conventional theories can explain how such a quantity of water could be supplied. As an alternative, Burnet proposes that at the creation a sphere of earth was deposited on the surface of an inner concentric sphere of water; the original earth, so formed, was a perfect sphere without mountains or seas. It was slightly elongated at the poles, from which rivers, formed by the condensation of vapors rising out of the inner abyss, flowed to the equator. Its axis was perpendicular to the plane of the ecliptic, and as a result the earth enjoyed a perpetual equinox.<sup>21</sup>

In this smooth Earth were the first Scenes of the World, and the first Generations of Mankind; it had the beauty of Youth and blooming Nature, fresh and fruitful, and not a wrinkle, scar or fracture in all its body; no Rocks nor Mountains, no hollow Caves, nor gaping Channels, but even and uniform all over. And the smoothness of the Earth made the face of the Heavens so too; the Air was calm and serene; none of those tumultuary motions and conflicts of vapours, which the Mountains and the Winds cause in ours: 'Twas suited to a golden Age, and to the first innocence of Nature.<sup>22</sup>

The Flood, Burnet maintained, was caused when the sphere of earth collapsed into the abyss and the fountains of the deep were broken open. Mountains were formed and the land and sea divided. Mountains, so conceived, are the result of the curse as it was fulfilled in the Flood. As such, they represent the disorder of sin in the fallen earth:



these Mountains are plac'd in no order one with another, that can either respect use or beauty; And if you consider them singly, they do not consist of any proportion of parts that is referrable to any design, or that hath the least footsteps of Art or Counsel. There is nothing in Nature more shapeless and ill-figur'd than an old Rock or a Mountain, and all that variety that is among them is but the various modes of irregularity. . . . And lastly, if you look upon an heap of them together, or a Mountainous Country, they are the greatest examples of confusion that we know in Nature. . . .<sup>23</sup>

Mountains are the "ruines of a broken World," like the "old Temples and broken Amphitheaters of the *Romans*."<sup>24</sup> They signify the curse on the earth for the sin of Adam.

In Burnet the sacred theory of the earth is given its final form. The theory began with the scriptural accounts of the Fall, the curse, and the Flood. It developed in medieval exegesis into an elaborate theory of the relationship between natural and moral law, and of the derivative relationship between human sin and terrestrial disorder. In this form the theory was inherited by the seventeenth century, presupposing the belief that the moral estate of man was corrupted in the Fall and that the natural estate of the earth was corrupted in the curse and the Flood. Burnet's treatise rationalized these beliefs. As such, it offers a specific definition of the fallen and unfallen states of the earth. In its unfallen state, there was "not a wrinkle, scar or fracture" in the form of the earth; in its fallen state, there is no "proportion of parts that is referrable to any design" respecting either "use or beauty." In these terms, as a definition of both the causes and the effects of disorder, the theory was given its conclusive elaboration.



## *The Whole Frame of the World*

THIS very yeare there arose a star whose encreasing and decreasing was plainly marked, and we saw (a matter hardly to be credited) even in the heaven it self, a thing to have beginning and end againe.<sup>1</sup>

Traditional commentary on the curse had distinguished, in denoting the effects of the Fall, between the region “above bright *Cynthia's* silver Car,” exempt from disorder, “Never transformed, not trans-substantiate,” and the “fickle *Frame*” beneath in which “All are to *Death* inthrall'd.”<sup>2</sup> This distinction originated in patristic exegesis. The controlling scriptural text is a passage in the Second Epistle of St. Peter:

5. For this they willingly are ignorant of, that by the word of God the heavens were of old, and the earth standing out of the water and in the water: 6. Whereby the world that then was, being overflowed with water, perished: 7. But the heavens and the earth, which are now, by the same word are kept in store, reserved unto fire against the day of judgement and perdition of ungodly men.<sup>3</sup>

The implication, contained in the sixth verse, that both the heavens and the earth were destroyed by the Flood was suppressed in orthodox exegesis, the apostle being understood to refer only to the sublunary heavens or regions of air. St. Augustine's interpretation is typical:

*Latet enim illos hoc volentes, quia coeli erant olim et terra de aqua, et per aquam constituta Dei verbo; per quae, qui tunc erat*

*mundus, aqua inundatus deperiit. . . .* Nam et illo tempore perisse dixit, qui tunc erat, mundum: nec solum orbem terrae, verum etiam coelos, quos utique istos aërios intelligimus, quorum locum ac spatium tunc aqua crescendo superaverat. Ergo totus, aut pene totus aer iste ventosus (quod coelum vel potius coelos vocat, sed istos utique imos, non illos supremos, ubi sol, et luna, et sidera constituta sunt), conversus fuerat in humidam qualitatem; atque hoc modo cum terra perierat, cuius terrae utique prior facies fuerat deleta diluvio.<sup>4</sup>

The heavenly regions above the moon are preserved from the disorder of sin: "in apostolica illa Epistola a toto pars accipitur, quod diluvio perisse dictus est mundus, quamvis sola eius cum suis coelis pars ima perierit."<sup>5</sup> This distinction received support in the twelfth-century commentaries on Aristotle's *De Caelo*. In St. Thomas' *In Aristotelis nonnullos Libros Commentaria*, the most important of these, the distinction is stated in terms of a theory of celestial substance. St. Thomas develops a consecutive argument in support of Aristotle's three main assumptions: that the heavens are composed, not of the four sublunary elements, but of a fifth element or quintessence; that as such the heavens are ingenerate, incorruptible, and eternal; that the circle, having no contrary, is the perfect motion and is therefore the proper motion of the heavenly bodies. In the sublunary category all things are generate, corruptible, and ephemeral; in the celestial category all things are ingenerate, incorruptible, and eternal. In this form the patristic theory of heavenly order reached the seventeenth century,<sup>6</sup> where it justified the belief that, though the earth represents the disorder of sin, the heavens represent the order of divine law.

In the century after Copernicus published *De Revolutionibus Orbium Coelestium* in 1543, astronomical investigation acted in three major ways to break down the distinction between the terrestrial and celestial categories. It showed that stars generate and degenerate, that the planets do not move in circles at constant speeds, and that the moon is an irregular sphere.

The first of the new stars was observed in Cassiopeia in 1572; others were observed in 1600 in Cygnus and in 1604 in Sagittarius.

In 1573, Tycho Brahe published *De Nova Stella*, a treatise on the nova of 1572 in which he proved, from the absence of visible parallax, that the star was situated above the moon in the region of the heavens. In England, these results were obtained in the same year by John Dee and Thomas Digges. Dee published a study of parallax and wrote a second treatise on the new star which he did not print. Digges published his *Alae, seu Scalae Mathematicae*, the most important treatise, after Tycho's, on the new star. In 1588, Tycho applied the same method to the observed phenomena of comets and published his conclusion, that comets move in the celestial and not in the sublunary region, in *De Mundi Aetherei recentioribus Phaenomenis*.

The treatises of Kepler on the planetary orbits, published between 1609 and 1621, acted in a different way to show the identity of terrestrial and celestial matter and motion. Kepler showed that the planets move in elliptical orbits with one focus in the sun, and that in equal times the sectors swept out by their radii to the sun are equal in area. This means that the planets increase in velocity as they approach the sun in their perihelion and decrease in velocity as they recede from it in their aphelion. The experimental verification of Kepler's laws eliminated the traditional distinction between heavenly motion, which is constant and circular, and sublunary motion, which is variable in both direction and velocity.<sup>7</sup>

Galileo's discoveries with the telescope, made public in the *Sidereus, Nuncius* in 1610, offered new evidence of macrocosmic disorder. News of Galileo's observations reached England immediately after their publication.<sup>8</sup> On March 13, 1610, Sir Henry Wotton sent the following despatch to James I:

I send herewith unto his Majesty the strangest piece of news (as I may justly call it) that he hath ever yet received from any part of the world; which is the annexed book (come abroad this very day) of the Mathematical Professor at Padua, who by the help of an optical instrument (which both enlargeth and approximateth the object) invented first in Flanders, and bettered by himself, hath discovered four new planets rolling about the sphere of Jupiter, besides many other unknown fixed stars; likewise, the



true cause of the *Via Lactea*, so long searched; and lastly, that the moon is not spherical, but endued with many prominences, and, which is of all the strangest, illuminated with the solar light by reflection from the body of the earth, as he seemeth to say. . . . These things I have been bold thus to discourse unto your Lordship, whereof here all corners are full. And the author runneth a fortune to be either exceeding famous or exceeding ridiculous. By the next ship your Lordship shall receive from me one of the above-named instruments, as it is bettered by this man.<sup>9</sup>

In the *Sidereus, Nuncius*, Galileo reported the discovery of thousands of stars hitherto unknown, of the four satellites of Jupiter, and of the nature of the Milky Way. But his most important discovery, in terms of its effect on the literary imagination, was that the moon is an imperfect sphere, possessing mountains and valleys like the earth: “*deinde sensata certitudine quispiam intelligat, Lunam superficie leni & perpolita nequaquam esse indutam, sed aspera, & inaequali, ac veluti ipsiusmet Telluris facies ingentibus tumoribus, profundis lacunis, atq; anfractibus undiquaq; confertam exsistere.*”<sup>10</sup>

By 1621, astronomical evidence of at least three important kinds, each acting in a common direction, had been presented to the public imagination. Tycho had shown, from the absence of observable parallax, that the new star in Cassiopeia had been generated in the sphere of the heavens. Kepler had shown, by verification of the laws of planetary motion, that the planets move at irregular velocities, not on circular but on elliptical orbits. Galileo had shown, by the use of the telescope, that the moon is an imperfect sphere with mountains and valleys. These three kinds of evidence combined to support a new phase of the traditional belief that in the curse the world was committed to the disorder of sin, a phase in which the curse was conceived to involve “the whole frame of the world,” the heavens as well as the earth, in a “sensible decay and mortality.”<sup>11</sup>

This belief, derived from both traditional exegesis and contemporary science, became a constant in the popular mind during the first quarter of the seventeenth century, informing the work of

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poets, moralists, theologians, historians, geographers.<sup>12</sup> It is the controlling idea in Donne's elegy on Elizabeth Drury.

Donne's anatomy of the world begins with the microcosm of man. In man "There is no health"; "poore mothers cry, That children come not right, nor orderly"; his span of life is shortened, his original stature reduced.<sup>13</sup> This account of microcosmic decay occupies the first main section of the poem (ll. 91-174). At the end of the section Donne returns to the theme of the first ninety lines:

Shee, shee is dead; shee's dead: when thou  
knowest this,  
 Thou knowest how poore a trifling thing man is.<sup>14</sup>

The last line summarizes the first phase of the poem.

The next section (ll. 191-218) relates the disorder of the earth to the commission of sin. For "as mankinde," so is the earth's proportion, in fulfilment of the curse, "Quite out of joynt, almost created lame."<sup>15</sup>

The noblest part, man, felt it first; and than  
 Both beasts and plants, curst in the curse of man.<sup>16</sup>

Donne reverts to this aspect of the theme later in the poem, using mountains and seas as symbols of terrestrial misgovernment:

But keepes the earth her round proportion still?  
 Doth not a Tenarif, or higher Hill  
 Rise so high like a Rocke, that one might thinke  
 The floating Moone would shipwracke there, and sinke?  
 Seas are so deepe, that Whales being strooke to day,  
 Perchance to morrow, scarce at middle way  
 Of their wish'd journies end, the bottome, die.

. . . . .

Are these but warts, and pock-holes in the face  
 Of th' earth? Thinke so: but yet confesse, in this  
 The worlds proportion disfigured is. . . .<sup>17</sup>

The second section, like the first, is brought to an end by return to the theme of "Shee," whose death is the central symbol which unites the surrounding imagery of disorder and decay in man, the earth, and the heavens.



She to whom this world must it selfe refer,  
As Suburbs, or the Microcosme of her,  
Shee, shee is dead; shee's dead: when thou knowst th

The final statement summarizes the second phase of the poem.

For the worlds beauty is decai'd, or gone,  
Beauty, that's colour, and proportion.<sup>19</sup>

doth enforce

Nor can the sun "Perfit a Circle, or maintaine his way One inch direct." And in the stellar constellations "New starres" appear, "As though heav'n suffered earthquakes."<sup>21</sup> For "new Philosophy calls all in doubt," the "Sun is lost, and th' earth," and "freely men confesse that this world's spent" and "crumbled out againe to his Atomies."

'Tis all in peeces, all cohaerence gone;  
All just supply, and all Relation. . . .<sup>22</sup>

14

still, though by many experiences of new Stars, the reason which moved *Aristotle* seems now to be utterly defeated.”<sup>24</sup> New stars, comets, eclipses, other worlds, this is the material of Donne’s elegy: “all cohaerence gone; All just supply, and all Relation.” At the end of the final section of the *Anatomie*, Donne returns to the theme of “Shee,” whose death is for him a microcosm of the state of both man and the world.

This conception of the earth and heavens was elaborated and rationalized in a treatise on the Fall of man published in 1616 by Godfrey Goodman, later Bishop of Gloucester. The form imposed upon it by Goodman persisted for more than four decades, until it was qualified, during the 1660s and 1670s, by the arguments advanced in a series of pamphlets defending the study of natural law as practiced by the Royal Society. Goodman professes to give a complete account of the relations between moral and natural evil, between sin and natural disorder. The disorder of the natural estate is revealed in man, the earth, and the heavens. Man is subject, in his youth, to “hot agues and plurisies, like burning seas with their ebbings and flowings”; in his “elder yeeres, the stone, the gowte, the strangullion; then ruptures, aches, and coughes; at length the dead palsie, the apoplexie, the lethargie gives him his deadly wound.”<sup>25</sup> The fallen state of the earth is signified by mountains, seas, and the change of seasons: “the least part of the earth is temperate and habitable, either in regard of the climate, or in regard of the soyle; barren heathes, high mountaines, stonie rockes, wast desarts and wildernes: I speake not of the huge Ocean, which with her armes seemes to imbrace the whole earth, and farre to exceed it in quantity.”<sup>26</sup> The Flood is the fulfillment of the curse, “the un-evennes of the earth (the hils and the vales)” being “much caused by this generall deluge.”<sup>27</sup> Terrestrial disorder so conceived is the consequence of human sin: the thorns and thistles “certainly would much detract from the divine wisdome and goodnesse, were it not that they are rooted in that earth, that earth which is accursed for sin, and therefore brings forth bryars and brambles, as tortures and torments for the just punishment of sinne.”<sup>28</sup> The fallen state of the

heavens is signified by new stars, comets, and lunar mountains: "in the last place I dare accuse the materiall heavens, as being guiltie, conspiring, and together joyntly tending to corruption; Scripture shall warrant me, *the heavens shall waxe old as doth a garment.*" This belief is supported by the evidence of "perspective glasses," by means of which "we have lately discerned spots and shadowes in the Moone; and within our memorie, in the yeere 1572. a true Comet did appeare in the eighth Heaven, which as it had a time of beginning, so had it a period, and time of dissolving." The whole frame of the world is mutable and mortall; "being mortall of our selves, wee dwell in houses of clay, the rooffe of this world, as well as the foundations shall together be mooved." <sup>29</sup>

Robert Burton's "Digression of Air," published as a chapter of his anatomy of Jacobean melancholy in 1621, is a learned breviary of contemporary astronomy. Burton observes that "some think" there is "generation and corruption" in the heavens, "by reason of aethereal Comets, that in *Cassiopea* 1572, that in *Cygnus* 1600, that in *Sagittarius* 1604, and many like." <sup>30</sup> The moon is an imperfect sphere, and the telescope has discovered lunar mountains, valleys, and seas: "for so they find by their glasses those *maculae in facie Lunae*, the brighter parts are Earth, the dusky Sea . . . and manifestly discern Hills and Dales, and such like concavities, if we may subscribe to and believe *Galileo's* observations." <sup>31</sup> There are also "certain spots and clouds in the Sun" observed "by the help of glasses, which multiply (saith *Kepler*) a thing seen a thousand times bigger in *plano*, and makes it come 32 times nearer to the eye of the beholder." <sup>32</sup>

There is little indication that the new learning, contained in the encyclopedic compendium of his mind, created for Burton a major imaginative disturbance. In William Drummond, as in Donne, its effects are more immediate and intense. The heavens, like the earth, signify for Drummond the disorder of original sin. This "flowrie Orbe," in its innocence, "but in place disvalu'd was to Heaven." In the Fall of man, the earth "To all became a Jaile, to most a Hell." <sup>33</sup> In the heavens,

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New-worlds seeme shine,  
With other Sunnes and Moones, false Starres  
decline,  
And dive in Seas; red Comets warme the Aire,  
And blaze, as other Worlds were judg'd there.<sup>34</sup>

The "Sunne . . . is observed to have Spots," "Cometes are mounted above the Planetes," "Lights above (deserving to bee intituled Starres) are loosed and never more seene of us," the "Element of Fire is quite put out, the Aire is but Water rarified, the Earth is found to move, and is no more the Center of the Universe."<sup>35</sup>

In a manual on geography published in 1625, Nathaniel Carpenter, geographer and divine, describes at some length the consequences of "that *Curse* which our Almighty Creatour cast on the whole Earth for *Adams* sake, which afterward seemes renewed and increased in the generall deluge, wherein all mankinde suffered for their sinnes a plague of waters."<sup>36</sup> Carpenter's discussion of the curse is interesting because he deals directly with the doctrine of the heavenly and sublunary categories which obtained in traditional commentary, and, like Donne, rejects the distinction between earthly and heavenly substance. The "immunity from *corruptible* qualities granted to the Heavens . . . hath bin much talked of amongst the *Aristoteleans*, but never warranted by any certain demonstration." These philosophers suppose "the Heavens to have remained since the beginning of the World, without any sensible alteration and change; and therefore must all the *Elementarie* and corruptible qualities be excluded. To disprove this," Carpenter concludes, "I need goe no farther than the last *Comet*, which Mathematicians by the *parallaxe* found to be in the heavens."<sup>37</sup> John Swan, a contemporary almanac-maker, takes the same view of the theory of those "who follow *Aristotle*" that the heavens are "of a *Quintessence* altogether differing from things compounded of the Elements," being "perswaded to think," on the contrary, "that there is no such fifth essence in them, but rather that they are of a like nature with the Elements, or not much differing." Aristotle, who denied "any change or alteration



to have been observed or seen in the heavens since the beginning of the world . . . was deceived . . . for there was in his dayes a new starre like unto that which was once in *Cassiopea*.”<sup>38</sup> As, therefore, “it is with Man who is the little world, so certainly it is with [the] *Macrocosme* who is the greater world”; as “man changeth and declineth daily, not being now as heretofore he hath been,” so “the greater world doth also suffer change, and, by declining, alteration.”<sup>39</sup>

In 1627 George Hakewill, Chaplain to Prince Charles and later Rector of Exeter College, Oxford, published the first edition of his *Apologie or Declaration of the Power and Providence of God in the Government of the World*. The *Apologie*, in which Hakewill argues, against Goodman, that the world represents not the disorder of original sin but the order of divine law, indicates a major revision of assumptions. A second edition was issued in 1630, but not until 1635 did the *Apologie* exert its full influence. In that year a third edition was published, with a supplementary fifth book containing a statement of the arguments on both sides by Goodman and Hakewill. During the first two decades of the Restoration, Hakewill’s arguments were supported by the treatises of Spencer, Sprat, Glanvill, and others issued in defense of the methods and purposes of the Royal Society. During the last decade of the century they were reformulated and employed to refute Burnet’s theory of the earth.

The seventeenth century had inherited from literary and exegetical traditions an elaborate doctrine of the Fall and the curse. The terrestrial world was conceived to represent the disorder of sin, the heavens the order of their original conception. The evidence furnished by contemporary astronomy in the half-century after 1572 modified the traditional doctrine by eliminating the distinction between the earthly and heavenly categories, and by showing, as it was thought, that not only the earth but also the heavens are subject to the disorder of sin.

Now in every sense, the world may well be said to be subject to the reproofe of God. . . . He rebuked the earth bitterly in that *Maledicta terra*, for *Adams* punishment, *Cursed be the ground for*

## THE WHOLE FRAME OF THE WORLD

*thy sake. . . .* As the world is the whole frame of the world, God hath put into it a reproofe, a rebuke, lest it should seem eternall, which is, a sensible decay and age in the whole frame of the world, and every piece thereof.<sup>40</sup>

The revision of assumptions in the second half of the seventeenth century created new possibilities of belief. It permitted the supposition that the creation is representative not of disorder but of order, and made it possible to believe that both the heavens and the earth testify not to the sin of Adam but to the wisdom of God.





*PART TWO · THE PHYSICS OF THEOLOGY*





## *A New Theory of the Earth*

Now for the . . . opinion . . . that this decay came in after the fall, by making it the just punishment of sinne," this is "grounded upon the curse of the earth, Gen. 3. but that this curse extended to the changing of the principles of nature in the earth it selfe, wee finde not, much lesse that it reached unto the heavens."<sup>1</sup> Thus Hakewill summarizes the issue between himself and Goodman. That "this decay came in after the fall, by making it the just punishment of sinne" was the accepted belief; that the curse did not extend "to the changing of the principles of nature" in either the earth or the heavens was the view Hakewill proposed in the *Apologie*. "True it is that men and Angels being the onely rationall creatures that God made, indued with understanding and freedome of will, have both corrupted their owne wayes, and feele the smart thereof, and the other creatures by the abuse of them; but neither of them have, or possibly can alter the fundamentall lawes of nature in themselves, much lesse in the other creatures."<sup>2</sup> This argument Hakewill uses, against Goodman, to contend that the creation is a product, not of original sin, but of divine wisdom.

These principles were greatly elaborated after 1663, the year in which the Royal Society was founded, by such diverse members of the Society as John Spencer, distinguished Hebraist and later Master of Corpus Christi College, Cambridge, Thomas Sprat, Bishop of Rochester and author of the well-known *History of the Royal-Society of London*, and Joseph Glanvill, Rector of Bath

Abbey, Chaplain to Charles II, and one of the most vigorous apologists for contemporary science. These men were concerned to show the religious utility of the kind of learning professed by the Society. The purpose of the Society was to investigate the physical world and to reduce natural operations to general laws. This appeared to involve the supposition that the physical world is explicable in mechanical terms. To dissociate the new learning from this belief, its proponents argued that physical laws do not explain causes but describe effects. That is, the description of effects provided by physical law in no sense justifies the supposition that the causes are mechanical; on the contrary, it compels belief in a divine cause. To describe and enumerate effects and to reduce them to law is, therefore, to reveal the causal wisdom of God—as if, as Spencer remarks, “*to shew how many wheels in some great Engine, move in subordination to the production of some great work, were to obscure and eclipse the art of the Artificer.*”<sup>3</sup> Sprat makes a similar case in his *History*, in which he is concerned not only to describe but also to justify the methods practiced by the Society. The natural philosopher, he points out, “has always before his eyes the *beauty, contrivance, and order of Gods Works*: From hence, he will learn to serve him with all reverence, who in all that he has made, consulted *Ornament*, as well as *Use* . . . [and] will be led to admire the wonderful contrivance of the *Creation*; and so to apply, and direct his praises aright: which no doubt, when they are offer’d up to *Heaven*, from the mouth of one, who has well studied what he commends, will be more suitable to the *Divine Nature*, than the blind applauses of the ignorant.”<sup>4</sup> In a series of pamphlets published during the 1670s, Glanvill distinguishes at length between what he calls the Peripatetic or notional method, which “discovers little of its [nature’s] *real beauty, and harmonious contrivance*; so that *God hath no Glory* from it; nor *men* any argument of his *wisdom, or existence*,”<sup>5</sup> and the experimental method, which is justified by its “tendency to devout Acknowledgements.” For if, Glanvill argues in phrases similar to Sprat’s, “we know no further than *occult Qualities, Elements, Heavenly Influences and Forms*, we shall never be able to

disprove a *Mechanick* Atheist; but the more we understand of the *Laws of Matter and Motion*, the more shall we discern the *necessity* of a *wise* mind to *order* the blind and insensible Matter, and to *direct* the *original* Motions.”<sup>6</sup> The religious office of the new learning is to show that natural operations are governed by law and that natural law so conceived represents the causal wisdom of God; these are the “devout Acknowledgements” of natural philosophy.<sup>7</sup>

During the five decades between the publication of the third edition of Hakewill’s *Apologie* and the appearance of the Bishop of Hereford’s *Animadversions* upon the *Sacred Theory* in 1685, the belief that the natural estate represents not the disorder of sin but the order of divine wisdom accumulated evidence and increased in influence.<sup>8</sup> These two conceptions meet in the controversy over Burnet’s *Sacred Theory*. The *Sacred Theory* is the conclusive statement of the idea of disorder; in the replies, published in the fifteen years between 1685 and 1700, the idea of order is defined and established.

Mountains and seas are, for Burnet, the characters of disorder in the fallen earth. The contrary belief, that mountains and seas are the emblems of divine conception, had been stated at some length as early as 1638 by John Wilkins, a central figure among the philosophers of Gresham College and later Master of Wadham and Bishop of Chester. “Though there are some who think Mountains to be a deformity to the Earth,” Wilkins observes, “as if they were either beat up by the Flood, or else cast up like so many Heaps of Rubbish left at the Creation; yet if well considered, they will be found as much to conduce to the Beauty and Conveniency of the Universe, as any of the other Parts.” “Certainly then,” he concludes, “such useful Parts were not the Effect of Man’s Sin, or produced by the World’s Curse, the Flood; but rather at the first created by the Goodness and Providence of the Almighty.”<sup>9</sup> Mountains, as such, represent the original and present order of the “great Volume of the World.” “The most sagacious man is not able to find out any blot or error in this great



Volume of the World, as if any thing in it had been an imperfect essay at the first, such as afterwards stood in need of mending: *But all things continue as they were from the beginning of the Creation.*"<sup>10</sup>

Henry More, in both the *Antidote against Atheism* (1653) and the *Divine Dialogues* (1668), replied to "those Allegations, That Rocks and Mountains and Woods and the Sea take up so great a part" and thus disfigure the earth.<sup>11</sup> Describing the order of natural law in the earth, More contends that "even those rudely-scattered *Mountains*, that seem but so many Wens and unnatural Protuberancies upon the face of the Earth, if you consider but of what consequence they are, thus reconciled you may deem them Ornaments as well as useful. For these are Nature's *Stillatories*, in whose hollow Caverns the ascending Vapours are congealed to that universal *Aqua vitae*, that good *fresh-water*, the Liquor of Life . . . being carried along in all Parts of the Earth in the winding Channels of *Brooks* and *Rivers*."<sup>12</sup> "The *Rocks* therefore, beside other uses for conveying the subterraneous Water, may serve also for consolidating the Earth. And it is manifest that the *Hills* are usually the Promptuaries of Rivers and Springs."<sup>13</sup>

It was not, however, until after the publication of the first two books of the English edition of the *Sacred Theory* in 1684 that the new theory of the earth was worked out in a coherent and consistent form. The earliest extant criticism of the *Sacred Theory* is contained in two letters written to Burnet in December, 1680 and January, 1681 by Isaac Newton, to whom Burnet had apparently sent an advance copy of the Latin edition.<sup>14</sup> Newton suggests that the irregularities on the surface of the earth may be explained as a result of the action of the sun during the process of precipitation from chaos. He proposes, as an explanation of the Flood, a miraculous disturbance of the celestial waters, and suggests, further, that the properties of Paradise as described in Scripture may simply have been those proper to the equatorial region. These suggestions are mutually consistent. They permit Newton to dispense with Burnet's theory as an explanation of the accepted facts of the Flood, and so to assume that mountains and seas orig-

inated at the creation and therefore represent the order of divine conception.

The first of the published replies to the *Sacred Theory* was issued in 1685, a year after Burnet had published the English edition, by Herbert Croft, Bishop of Hereford. Croft differed from Burnet initially in defining the relationship between law and miracle. "Shall man then, who understands not himself, nor the mean works of God, by his shallow weak Reason examine and determine the great and wonderful Works of God? God forbid."<sup>15</sup> If the Flood, on the orthodox suppositions, is unintelligible, "let it be unintelligible; Is it a good consequence therefore to say it is Incredible?"<sup>16</sup> Croft explains the Flood as a miracle. The land and sea were divided on the third day of creation by an act of God, which caused the waters to be drawn up into heaps above the surface of the land. In the Flood these waters, together with those which had been suspended above the firmament since the creation, were released and overflowed the earth. The assumption that the Flood was a miracle, inexplicable in terms of physical laws, was an important factor throughout the controversy, for it enabled Burnet's opponents to argue that Burnet's supposition of an alteration in terrestrial form was unnecessary to an explanation of the Flood. This argument permits Croft to assert the substantial identity of the earth before and after the Flood. Mountains are original to creation and are therefore representative, not of the sin of Adam, but of the wisdom of God. "I desire him [Burnet] to give me leave to set forth our Microcosm, Man, in some such deformed way, as he doth the *Megacosm*, or great World. I might affirm him to be a most misshapen creature also; and his Head to be like a Jug or Bottle with the neck turned downwards, much deformed in it self, one side all rough and hairy, the other bald, as it were, all battered and broken."

Yet we believe this misshapen Body was framed by God himself . . . and much admire the wonderful structure and usefulness of every part. . . . And so this great body of the Earth taken all together hath a wonderful beauty and admirable structure, even in those parts which he sets forth as most disagreeing and de-

formed. The high and rocky Mountains immediately adjoining to the boundless Seas, quite of another nature, represent unto us the infinite Power and Majesty of God. . . .<sup>17</sup>

Croft continues by quoting Burnet's passage on the sublimity of mountains, and observes, "Surely he much forgot his former thoughts of the rude Earth, when he uttered these words."<sup>18</sup>

Erasmus Warren, the author of a *Discourse Concerning the Earth before the Deluge* published in 1690, presents a similar argument against the *Sacred Theory*. Like Croft, Warren argues that the Flood was a miraculous act of providence. This supposition enables him to assume, as does Croft, the identity of the antediluvian and postdiluvian states of the earth. He denies that in the antediluvian earth there was a perpetual equinox, arguing to the contrary that the axial obliquity of the earth, which causes the seasons, is a production of divine wisdom. Similarly, Warren argues, from both Scripture and reason, that mountains and seas originated not at the Flood but on the third day of creation, when the dry land was divided from the waters. As such, they are justified by both their use and their beauty. In his *Answer to the late Exceptions made by Mr Erasmus Warren*, published in the same year, Burnet reasserts his theory that the Flood was the fulfilment of the curse in the disorder of the fallen earth. Of Warren's defense of mountains he observes:

Then he makes a large harangue in commendation of Mountains and of the present Form of the Earth. . . . But it is not enough for the Excepter to admire the beauty of Mountains, but he will make the Theorist to do so too, because he hath exprest himself much pleas'd with the sight of them. . . . We are pleas'd in looking upon the Ruines of a *Roman* Amphitheater, or a Triumphal Arch, tho' time have defac'd its beauty. A man may be pleas'd in looking upon a Monster, will you conclude therefore that he takes it for a Beauty?<sup>19</sup>

In 1692, John Ray, divine, author of a popular treatise on *The Wisdom of God*, and the most distinguished natural historian of the day, published a collection of *Miscellaneous Discourses Concerning the Dissolution and Changes of the World*, in which the

main premisses of the argument against Burnet are stated in full. Like Burnet, Ray supposes that the earth is founded on an abyss of waters which communicates with the ocean. His problem is to explain the rising of the abyss at the Flood without supposing a radical alteration in the figure or form of the earth's surface. The solution he advances is that of a miraculous "Emotion" of the earth's center of gravity towards the east, causing the submergence of the eastern hemisphere.<sup>20</sup> The Flood ceased when by a second miracle the emotion was reversed. This supposition enables Ray to dissociate mountains from the curse and the Flood. He suggests that mountains and seas were each created on the third day; instituted at the creation, mountains represent the wisdom of God, in both use and beauty. The "present face of the Earth with all its Mountains and Hills, its Promontories and Rocks, as rude and deformed as they appear, seems to me a very beautiful and pleasant object, and with all that variety of Hills, and Valleys, and Inequalities far more grateful to behold, than a perfectly level Countrey without any rising or protuberancy, to terminate the sight."<sup>21</sup> The argument from utility rests on the evident necessity of mountains to "various sorts of Animals" and plants, and as a source of metals and minerals.<sup>22</sup> "Another great use and necessity of Mountains and Hills is for the Generation and Maintenance of Rivers and Fountains, which . . . could not be without them, or but rarely."<sup>23</sup> Applying these principles to a general theory of natural law, Ray observes, referring to Hake-will, that "that Author hath at large demonstrated, that neither the pretended decay of the Heavenly Bodies in regard of Motion, Light, Heat or Influence; or of any of the Elements: neither the pretended decay of Animals, and particularly and especially of Mankind, in regard of Age and Duration, of Strength and Stature, of Arts and Wits, of Manners and Conversation, do necessarily infer any decay in the World, or any tendency to a Dissolution."<sup>24</sup>

Ray's *Discourses* rationalized a new conception of mountains and, in a wider sense, a new conception of the earth in relation to the Fall and the curse. Its features are indicated by a treatise on



the *Sacred Theory* published in the following year by John Beaumont, surgeon and geologist and a Fellow of the Royal Society. Beaumont works out a comprehensive argument to support his belief in the identity of the fallen and unfallen states of the earth. "I take upon me to maintain, that the World, from its first Existence, had Mountains, a Sea, and the like, as it has now."<sup>25</sup> Mountains are justified by both their use and their beauty in the present earth. A "level Country can never be so pleasant, as a Country diversified in Site and Ornament, with Mountains, Valleys, Chases, Plains, Woods, cataractical Falls, and Serpentine Courses of Rivers, with a Prospect of the Sea, &c. What is a dull Level to this?"<sup>26</sup> Mountains offer a habitat for a variety of plants and animals; they act as boundaries and as a protection against the wind; they are a source of metals and minerals; they cause the circulation of waters.<sup>27</sup> These all became standard arguments in the physico-theological tradition during the next twenty years.<sup>28</sup>

Beaumont assumes that the Flood was a miraculous act of special providence: "it was beside the intent of the Prophets that these *Magnalia Dei*, the *Creation*, *Deluge* and *Conflagration*, the *new Heavens* and *new Earth*, &c. should ever be brought under a Physiological [i.e., mechanical] Consideration." "I look upon them as works grounded on an extraordinary Providence, and must own that as often as I have apply'd my understanding to the consideration of either, I have alway found my self absorpt in Miracle."<sup>29</sup> This supposition frees Beaumont from the necessity of assuming, with Burnet, that the Flood was caused by an alteration in the form of the earth. The whole force of his argument is, indeed, exerted in the opposite direction, supporting the belief that the present state of the earth, being the same as that of the original earth, represents the order of divine conception.<sup>30</sup>

These premisses are fully illustrated in *An Essay towards a Natural History of the Earth*, published in 1695 by John Woodward. Woodward, Professor of Medicine at Gresham College and a leading member of the Royal Society interested in the study of antiquities and geology, was compelled by the evidence of marine fossils which he and others had found in all parts of the earth to



assent to Burnet's proposition that the Flood altered the original form and constitution of the earth. He supposes that the waters of the Flood, brought out from the abyss by divine command, overflowed and dissolved the original surface of the earth.<sup>31</sup> Woodward accepts the inferences required by this hypothesis. God "at first framed an *Earth* of a *Constitution* suitable to the *innocent State* of its *primitive Inhabitants*: and afterwards when *Man* had *degenerated*, and quitted that *Innocence*, altered that *Constitution* of the *Earth*, by means of the *Deluge*, and reduced it to the *Condition* 'tis now in, thereby adapting it more nearly to the *present Exigencies* of things, to the *laps'd* and *frail state* of *humane Nature*." <sup>32</sup>

The *Essay towards a Natural History* is remarkable, however, not because Woodward accepts Burnet's theory of the reformation of the earth in the Flood, but because, despite his concession to Burnet, he argues that the present state of the earth is representative of divine conception. This view Woodward justifies by minimizing the differences between the fallen and unfallen states of the earth. Mountains and seas and the seasons are common to both. The "*Author* so often mentioned already [Burnet] hath set forth an *imaginary* and *fictitious Earth*"; the "*Face* of the *Earth*, before the *Deluge*, was *not smooth, even, and uniform*: but *unequal*, and distinguish'd with *Mountains, Valleys, and Plains*: as also with *Sea, Lakes, and Rivers*." <sup>33</sup> Its axis, likewise, "was not *parallel* to that of the *Ecliptick*, but *inclined* in like manner as it is at *present*"; "there were the same *Successions* of *Heat* and *Cold*, *Wet* and *Dry*: the same *Vicissitudes* of *Seasons*, *Spring*, *Summer*, *Autumn* and *Winter*, that *now* there is." <sup>34</sup>

Woodward defends this position by arguing that mountains, seas, and the seasons are justified as productions of the divine wisdom by their use and their beauty. "I am indeed well aware that the *Author* of the *Theory of the Earth* differs very much from me in *Opinion* as to this matter. He will not allow that there are any such *Signs* of *Art* and *Skill* in the *Make* of the *Present Globe* as are here mentioned. . . . He reckons it no other than an huge disorderly *Pile* of *Ruines* and *Rubbish*: and is very unwilling to

believe that it was the Product of any Reasoning or Designing Agent.”<sup>35</sup> Woodward quotes Burnet’s statement that mountains do not consist of any proportion of parts that is referable to either use or beauty, and replies that, on the contrary, there are in mountains “so very many real Graces and *Beauties*, that ’tis no easie thing to overlook them all.”<sup>36</sup> And further, those mountains “against which these *Exceptions* are made, are of indispensable *Use* and *Necessity*, as well to the *Earth* as to *Man* and other *Animals*, and even to all the rest of its *Productions*.”<sup>37</sup>

The result of Woodward’s inquiry is an affirmation of the order of natural law in the present constitution of the earth. “There were the same *Measures* taken, and the same *Process* used in this *Re-Formation* of it, that were us’d when ’twas *first built*: and much such an *Earth* arose out of the *Deluge*, as at the *Creation*, sprung out of *Nothing*.” In a word, all the parts of the earth “were so ordered that they might *best* conduce to the *End* whereunto they were *designed* and *ordained*.” There are “no such *Blemishes*” as Burnet supposed, “no *Defects*: nothing that might have been *altered* for the *better*: nothing *superfluous*: nothing *useless*, in all the whole *Composition*.”<sup>38</sup>

In the next year, William Whiston, a popular scientific lecturer and later Lucasian Professor of Mathematics at Cambridge, published *A New Theory of the Earth*, a remarkable treatise in which the author attempts to account for the creation, the Flood, and the Apocalypse in the terms provided by contemporary science. The relation of the *New Theory* to the conception of natural law formulated in the earlier replies to Burnet is complex and difficult to define. Whiston, like Woodward, accepts Burnet’s hypothesis that the earth was altered at the Flood in fulfilment of the curse; at the same time he contends, with Woodward, that mountains and seas were created on the third day.

Whiston supposes that before the creation the earth was a comet moving in an eccentric orbit. At the creation, by divine command, the earth became a planet, moving about the sun in a perfectly circular orbit. The original earth so formed was similar to the present earth in all respects but one, the absence of diurnal

rotation. In Eden a day was a year long. Of this original state of the earth Whiston observes: "In the primitive State of Nature there was a perpetual *Equinox*, or Equality of Day and Night through the World."<sup>39</sup> This refers not to the antediluvian earth but to the state of the earth *before the Fall*.<sup>40</sup> Until the Fall, the earth enjoyed an equinox because there was no diurnal rotation.<sup>41</sup> Whiston specifically rejects Burnet's doctrine of an *antediluvian* equinox. "What I can foresee of Objection, deserving our notice, against what has been advanc'd from the Testimonies of the old Philosophers, is this, That they seem to favour the perpetual *Equinox* before the Flood, by the right Position of the present *Axis* of the Earth, parallel to that of the *Ecliptick*, (as the Theorist imagines,) and its Inclination or oblique Position acquir'd at the Deluge, (as same Author supposes,) rather than the original Absence, and subsequent commencing of the Diurnal Rotation after the Fall of Man, as I here apply them."<sup>42</sup> The seasons, therefore, are proper to both the antediluvian and postdiluvian states of the earth. "Upon the first commencing of this *Diurnal* Rotation after the Fall, its *Axis* was oblique to the plain of the *Ecliptick* as it still is: Or in other words, the present vicissitudes of Seasons, *Spring*, *Summer*, *Autumn* and *Winter*, arising from the Sun's access to, and recess from the *Tropicks*, have ever been since the Fall of Man."<sup>43</sup> This analysis supports Whiston's general assumption that the earth before and after the Flood is the same in form. "The Primitive Earth had Seas and Dry-land distinguish'd from each other in great measure as the present; and those situate in the same places generally as they still are";<sup>44</sup> it "had Springs, Fountains, Streams, and Rivers, in the same manner as the present, and for the main usually in or near the same place also," and "was distinguish'd into Mountains, Plains, and Vallies, in the same manner, generally speaking, and in the same places as the present."<sup>45</sup>

The Flood Whiston explains as the result of the near approach of a comet. This explanation had been suggested earlier by Edmund Halley, who first established the laws governing the motion of comets, in a paper read before the Royal Society in 1694.<sup>46</sup>

Halley had proposed that the Flood occurred when the shock of collision with a comet caused a sudden change in the position of the poles of the earth. In the *New Theory*, Whiston elaborates on Halley's hypothesis. He conjectures that the earth's passage through the tail of the comet caused the forty days' rain recorded in Scripture, and that its entry into the gravitational field of the comet itself caused a fracture of the earth's crust under the force of attraction exerted by the comet on the subterraneous waters. The Flood subsided when the comet receded from the earth. On the last day it will return and, by collision with the earth, will inaugurate the Apocalypse.<sup>47</sup>

The effect of Whiston's theory was to reduce the physical consequences of the Flood as Burnet had defined them. Since he assumed that the Flood was the product of an external cause, Whiston was able to dissociate his explanation of the event from the belief that it caused a radical reformation of the original earth. Thus he could minimize the differences between the antediluvian and postdiluvian states of the earth, and could describe the present state of the earth as a production not of sin but of law.<sup>48</sup>

In the next year, Robert St. Clair presented a new set of arguments in defense of the belief, worked out in the earlier replies to the *Sacred Theory*, that the fallen and unfallen states of the earth are the same. These arguments relate to a theory of springs. St. Clair suggests that springs are fed by waters exhaled from the ocean, carried inland by winds, and condensed on mountains; the condensed vapors, together with rains, collect in depressions at the foot of mountains, from which they flow up in springs on the principle of the siphon.<sup>49</sup> This theory had been stated as early as 1679 by Robert Hooke, Curator and Secretary of the Royal Society.<sup>50</sup> In *Some other Considerations*, appended to the sixth of his Cutler Lectures, Hooke had suggested that springs derive from rainfall and the condensation of vapors. Halley described this process at length in 1691 in a paper read before the Royal Society on "The Circulation of Watry Vapours."<sup>51</sup> "Those Vapours therefore that are raised copiously in the Sea, and by the Winds are carried over the low Land to those Ridges of the Mountains,



are there compelled by the Stream of the Air to mount up with it to the Tops of the Mountains, where the Water presently *Precipitates*, gleeting down by the Crannies of the Stone; and part of the Vapours entring into the Caverns of the Hills, the Water thereof gathers as in an *Alembick* into the Basons of Stone it finds, which being once filled all the overplus of Water that comes thither runs over by the lowest Place, and breaking out by the sides of the Hills, forms single Springs.”<sup>52</sup> This theory Halley relates directly to the physico-theological defense of mountains: “This, if we may allow *Final Causes*, seems to be the design of the Hills, that their Ridges being placed through the midst of the *Continents*, might serve as it were for *Alembicks*, to distill Fresh Water for the use of Man and Beast, and their Heights to give a Descent of those Streams to run gently, like so many veins of the *Macrocosm*, to be the more beneficial to the Creation.”<sup>53</sup>

The exchange of pamphlets between John Keill and Burnet and between Keill and Whiston brought the active phase of the controversy to an end. Keill, author of two volumes of lectures on physics and astronomy and Savilian Professor of Astronomy at Oxford, was one of the most influential advocates of the new learning professed by the Royal Society. His *Examination of Dr. Burnet's Theory of the Earth. Together with Some Remarks on Mr. Whiston's New Theory*, which appeared in 1698, contains a summary statement of the main features of the physico-theological argument. Like Ray, Warren, and Beaumont, Keill denies that the Flood can be explained mechanically. Though “the Theorist is not very willing to acknowledge that God Almighty had any hand in that great Catastrophe of the world,” it is “the easiest and safest way, to refer the wonderful destruction of the old world to the Omnipotent hand of God, who can do whatsoever he pleases.”<sup>54</sup> In his *Remarks* on Whiston's theory, appended to the *Examination*, Keill criticizes Whiston for the same reason. He acknowledges that “Mr. *Whiston* . . . has made greater discoveries, and proceeded on more Philosophical Principles than all the Theorists before him have done,” but nevertheless maintains that it is “impossible to give a True and Mechanical account, of that



great Deluge of waters which once overflowed the Face of the whole Earth, it being a work not to be performed without the extraordinary contrivance of the Divine power.”<sup>55</sup> This assumption allows Keill to dispense with Burnet’s theory of the Flood and the antediluvian earth. Keill assumes, with Whiston, that mountains resulted from the unequal precipitation of the earth at the creation; but “supposing the efficient cause of Mountains unknown or impossible to be assigned; yet still there remains the final cause to be inquired into, which will do as well for our purpose. For if I prove them to be as useful to the inhabitants of the primitive earth, as they are now to us, and that in our present state they are absolutely necessary, not only for our well being, but also for our bare subsistence; I think from thence it will demonstratively follow that they were in the primitive earth as well as in ours.”<sup>56</sup> Keill proceeds to enumerate the arguments in justification of mountains and the present form of the earth. “I must confess I cannot but think it a strange and presuming boldness in the Theorist to assert, that Mountains are plac’d in no order one with another, that can either respect use or beauty: and that if they are singly consider’d, they do not consist of any proportion of parts, that is referable to any design, or hath the least footsteps of art or counsel. Notwithstanding this strange assertion, I am sure, if we were without these shapeless and ill-figur’d old Rocks and Mountains, as he calls them, we should soon find the want of them. It being impossible to subsist or live without them.” They are necessary to the “production of various Plants and Metals”; they do “considerable service” in “directing the Inland winds” and in “bounding Empires and Countries”; without them “it is certain we should have no Rivers, nor fresh currents of waters, and consequently we should want one of the greatest supports of Life.”<sup>57</sup> In support of this view Keill quotes at length from Halley’s paper on the circulation of waters.<sup>58</sup> He applies the same presuppositions to Burnet’s theory of the antediluvian equinox. “Notwithstanding this fine description of the Theorist’s, I hope to make it appear in this Chapter, that the right position of the Earth (as he calls it) is so very far from being desirable as he

imagins it is, that it is one of the worst it could have, and that therefore the Earth was never placed by God Almighty at the beginning of the world in such a position.”<sup>59</sup>

Later in 1698, Thomas Beverley replied to Keill in *Reflections upon the Theory of the Earth*<sup>60</sup> and, in the same year, Whiston published *A Vindication of the New Theory of the Earth* in answer to the *Remarks* appended to Keill's *Examination*. In the following year, Keill replied to the pamphlets of Beverley and Whiston in *An Examination of the Reflections on The Theory of the Earth. Together with A Defence of the Remarks on Mr. Whiston's New Theory*, and in 1700 Whiston issued a rejoinder entitled *A Second Defence of the New Theory of the Earth*. These final exchanges substantially concluded the controversy. In the fifteen years between Herbert Croft's *Animadversions* and Whiston's *Second Defence* more than thirty pamphlets and treatises relating to the controversy had been published.<sup>61</sup> The ostensible issue was a theory of the Flood. The real issue was a theory and conception of the earth. Burnet's theory of the Flood had rationalized the traditional conception of the earth as the natural estate of sin. The replies to Burnet rationalized a new conception of the earth as a product of the causal wisdom of God. The argument between these two conceptions was not, essentially, one of fact or logic but one of assumptions. The replies to the *Sacred Theory* are important not only because they indicate the nature of the new premisses but also because they show how unacceptable, by 1700, Burnet's premisses were. The new assumptions required a new interpretation of the curse. They implied that the effects of the Fall were confined to the moral estate and, accordingly, that the curse did not extend to “the changing of the principles of nature,” in Hakewill's phrase, “in the earth it selfe.” They led, as the evidence clearly indicates, to the belief that the earth is representative not of the disorder of original sin but of the order of divine law.



## *The Principles of Heavenly Law*

IN A note to *Queen Mab*, Shelley remarked that the “consistent Newtonian is necessarily an atheist.”<sup>1</sup> Newton himself, as well as the majority of his contemporaries, held the opposite view. In a letter to Richard Bentley written on December 10, 1692, Newton observed: “When I wrote my Treatise about our System [the *Principia*], I had an eye upon such principles as might work with considering men, for the belief of a Deity; and nothing can rejoice me more than to find it useful for that purpose.”<sup>2</sup> The principles which might work “for the belief of a Deity” were those of the theory of gravitation, worked out five years earlier in the *Principia*. The publication of Newton’s *Principia* in 1687 was a major event in the history of the seventeenth-century imagination. In 1611 Donne had confessed that

The Sun is lost, and th’ earth, and no mans wit  
Can well direct him where to looke for it.  
And freely men confesse that this world’s spent,  
. . . . .  
Is crumbled out againe to his Atomies.  
’Tis all in peeces, all cohaerence gone;  
All just supply, and all Relation. . . .

For James Hervey, rector of a country parish in the middle of the eighteenth century, contemplation of the “Starry Heavens” is an act of devotion in which the wisdom of God is revealed in the order of macrocosmic law: how “marvellous is that magnificent oeconomy, which *poised* the stars with inexpressible nicety, and

*meted* out the heavens with a span? where all is prodigiously vast, immensely various, and yet more than mathematically exact." "Surely the *wisdom* of God manifests itself in the skies."<sup>3</sup> The differences between Donne's assumptions and Hervey's is a measure of the extent and kind of influence exerted by the *Principia* on the contemporary imagination. Donne had supposed that the heavens signify the disorder of sin and that, therefore, the macrocosmic estate represents the original but not the present government of God. Hervey supposed that the heavens signify the order of divine law and therefore represent not only the original but also the present activity of God: gravity "is the very *finger* of God; the constant impression of divine power; a principle neither innate in matter, nor intelligible by mortals. — Does it not, however, bear a considerable analogy to the *agency* of the HOLY GHOST in the Christian oeconomy?"<sup>4</sup> Both of these assumptions were permitted by the *Principia*. As such, the *Principia* acted in two different but mutually consistent ways to demonstrate the order of heavenly law and to relate the heavenly order to God: it defined the law of planetary motion and showed it to be constant, regular, and general; and it showed, or was widely believed to show, the necessity to planetary motion not only of the original but also of the present activity of God.

Galileo had previously defined the space traversed by a falling body, in the particular case in which the body is at or near the surface of the earth, as the product of the force of gravity and the square of the time elapsed. In the *Principia*, Newton made the law general by defining the relationship between the force of gravity and the distance of the falling body from the earth, showing that gravity varies directly with mass and inversely with the square of the distance.<sup>5</sup> This law Newton employs to account for the observed motion of the moon about the earth. It applies likewise, as the observations of Cassini and Flamsteed showed, to the motion of the earth and other planets about the sun, and, as Halley later proved, to the periodic motion of comets. The significance of this theory to the literary imagination was that it reduced all heavenly motion to the operation of universal law, and



led to the belief that the heavens, like the earth, are representative of the order of their original estate.

This inference did not, however, exhaust the contemporary meaning of the *Principia*, since Newton's descriptive account of the universe raised the problem of explanation: how is the force of gravity transmitted to bodies at a distance from the agent? Is gravity an active principle innate in matter, a mechanical force acting in a material plenum, or an immaterial force in some way related to divine activity? The problem of locating and defining Newton's position is extremely perplexed.<sup>6</sup>

In the first edition of the *Principia*, Newton makes no attempt to explain the cause of gravity. It was at first commonly believed that he regarded gravity as an active principle of matter. Richard Bentley apparently shared the misunderstanding, for Newton wrote to him on January 17, 1693, saying, "You sometimes speak of gravity as essential and inherent to matter. Pray do not ascribe that notion to me; for the cause of gravity is what I do not pretend to know, and therefore would take more time to consider of it."<sup>7</sup> And in a letter of February 25, 1693 he continued:

It is inconceivable, that inanimate brute matter should, without the mediation of something else, which is not material, operate upon, and affect other matter without mutual contact; as it must do, if gravitation, in the sense of *Epicurus*, be essential and inherent in it. And this is one reason, why I desired you would not ascribe innate gravity to me. That gravity should be innate, inherent and essential to matter, so that one body may act upon another at a distance through a *vacuum*, without the mediation of any thing else, by and through which their action and force may be conveyed from one to another, is to me so great an absurdity, that I believe no man who has in philosophical matters a competent faculty of thinking, can ever fall into it. Gravity must be caused by an agent acting constantly according to certain laws; but whether this agent be material or immaterial, I have left to the consideration of my readers.<sup>8</sup>

In the second edition of the *Principia*, published in 1713, Newton clarified his position in two important additions to the text of 1687. In the first, Newton qualifies his use of the word "attrac-



tion": "I here use the word *attraction* in general for any endeavour whatever, made by bodies to approach each other, whether that endeavour arise from the action of the bodies themselves, as tending to each other or agitating each other by spirits emitted; or whether it arises from the action of the ether or of the air, or of any medium whatever, whether corporeal or incorporeal, in any manner impelling bodies placed therein towards each other."<sup>9</sup> Here Newton indicates only that gravitation does not necessarily imply the activity of matter, without committing himself to any of the positive alternatives. Again: "All bodies whatsoever are endowed with a principle of mutual gravitation. . . . Not that I affirm gravity to be essential to bodies: by their *vis insita* I mean nothing but their inertia."<sup>10</sup> Here Newton explicitly rejects the principle of material activity.<sup>11</sup> This assumption of the inactivity of matter is required by the first axiom of Newton's theory of motion, namely, that every body continues in its state of rest or of uniform motion in a right line unless impelled to change that state by some external force. Roger Cotes, who edited the second edition of the *Principia*, understood Newton in this sense. In a letter to Samuel Clarke dated June 25, 1713, he says: "I return You my thanks for Your corrections of the Preface, & particularly for Your advice in relation to that place where I seem'd to assert Gravity to be Essential to Bodies. I am fully of Your mind that it would have furnish'd matter for Cavilling, & therefore I struck it out immediately upon Dr Cannon's mentioning Your Objection to me, & so it never was printed."<sup>12</sup>

It is more difficult to define the relation between the concepts of material agency (the ether) and of immaterial agency (God) as components of Newton's theory. In a letter to Boyle dated February 28, 1679, Newton offers the former explanation. "I suppose this Aether pervades all gross bodies, but yet so as to stand rarer in their pores than in free spaces; and so much the rarer, as their pores are less." "I suppose the rarer Aether within bodies, and the denser without them, not to be terminated in a mathematical superficies, but to grow gradually into one another: the external aether beginning to grow rarer, and the internal to grow

denser, at some little distance from the superficies of the body, and running through all intermediate degrees of density in the intermediate spaces.”<sup>13</sup> Gravity is the tendency of bodies to move from regions of greater to regions of lesser ethereal density. In the *Principia*, however, Newton appears to reject the theory of an ether, on the grounds that any spatial medium would retard the motions of planets and comets. “From this . . . we have another argument proving the celestial spaces to be free, and without resistance, since in them not only the solid bodies of the planets and comets, but also the extremely rare vapors of comets’ tails, maintain their rapid motions with great freedom, and for an exceeding long time.”<sup>14</sup>

The evidence afforded by the letters to Bentley is more complete but no less inconclusive. Newton states at length the necessity of God as the *first cause* of motion: “To your second Query I answer, that the motions, which the planets now have, could not spring from any natural cause alone, but were impressed by an intelligent Agent.”<sup>15</sup> “To make this system, therefore, with all its motions, required a cause which understood, and compared together, the quantities of matter in the several bodies of the sun and planets, and the gravitating powers resulting from thence; the several distances of the primary planets from the sun, and of the secondary ones from *Saturn*, *Jupiter*, and the Earth; and the velocities, with which these planets could revolve about those quantities of matter in the central bodies; and to compare and adjust all these things together in so great a variety of bodies, argues that cause to be not blind and fortuitous, but very well skilled in mechanicks and geometry.”<sup>16</sup> These arguments relate, however, to the original and not to the present activity of God in the operation of natural law. But Newton continues: “There is yet another argument for a Deity, which I take to be a very strong one; but till the principles on which it is grounded are better received, I think it more adviseable to let it sleep.”<sup>17</sup> In the light of the statements in his later letter, written in the following February, on the necessity to the operation of gravity of “an agent acting constantly according to certain laws,”<sup>18</sup> it is legitimate to conjecture

that Newton is referring to the dependence of gravity on the divine presence.

In the second edition of the *Opticks*, published in 1718, Newton added a series of queries in which he considers the nature and transmission of light. This question involves that of the nature and transmission of gravity, since the use of the ethereal hypothesis in the one case will determine its use in the other. In these queries, Newton proposes an ethereal explanation of the transmission of light and its reflection and refraction: "Doth not the Refraction of Light proceed from the different density of this Aethereal Medium in different places, the Light receding always from the denser parts of the Medium," which is "exceedingly more rare and subtile than the Air, and exceedingly more elastick and active," pervading all bodies and extending "through all the Heavens?"<sup>19</sup> This ethereal plenum Newton uses also, as in the letter to Boyle, to explain the phenomenon of gravity: "Is not this Medium much rarer within the dense Bodies of the Sun, Stars, Planets and Comets, than in the empty celestial Spaces between them? And in passing from them to great distances, doth it not grow denser and denser perpetually, and thereby cause the gravity of those great Bodies towards one another, and of their parts towards the Bodies; every Body endeavouring to go from the denser parts of the Medium towards the rarer?"<sup>20</sup> Newton deals with the problem of resistance raised in his discussion of comets in the *Principia* by suggesting that the ether, while denser than gold, offers almost no resistance to the motion of celestial bodies: "may not its resistance be so small, as to be inconsiderable? . . . so small a resistance would scarce make any sensible alteration in the Motions of the Planets in ten thousand Years."<sup>21</sup> But Newton fails to give a consistent mechanical explanation of gravitational effects; elsewhere in the same query, he appears to deny that the effects of gravity can be explained mechanically. The office of natural philosophy is "to deduce Causes from Effects, till we come to the very first Cause, which certainly is not mechanical. . . . What is there in places almost empty of Matter, and whence is it that the Sun and Planets gravitate towards one another, with

out dense Matter between them?" Newton continues: "And these things being rightly dispatch'd, does it not appear from Phaenomena that there is a Being incorporeal, living, intelligent, omnipresent, who in infinite Space, as it were in his Sensory, sees the things themselves intimately, and thoroughly perceives them, and comprehends them wholly by their immediate presence to himself?"<sup>22</sup> This implies that the gravitational agency is immechanical and immaterial, deriving from the "Sensory" and presence of God.

The same ambiguities arise in Newton's treatment of the alternative theories of the nature of light, as undulations in an ethereal plenum or as the movement of corpuscles in a void. Newton's theory of light was first made public in a paper sent to Oldenburg, then Secretary of the Royal Society, on February 6, 1672, read before the Society on February 8, and printed in the *Transactions* in the same month. Hooke, who had advanced an ethereal hypothesis in Observation LVIII of his *Micrographia* seven years earlier, sent observations on Newton's paper to the Royal Society on February 15. Newton replied to Hooke's criticism in a letter of July 11, 1672, in which he states that Hooke's theory "seems impossible; namely, that the waves or vibrations of any fluid can, like the rays of light, be propagated in streight lines, without a continual and very extravagant spreading and bending every way into the quiescent medium, where they are terminated by it. I am mistaken if there be not both experiment and demonstration to the contrary."<sup>23</sup> On December 7, 1675, however, Newton sent Oldenburg a further paper on light and colors in which he qualifies this statement: "Perhaps ye whole frame of nature may be nothing but various contextures of some certain aethereal spirits or vapors condens'd as it were by precipitation . . . and after condensation wrought into various formes, at first by ye immediat hand of ye Creator, and ever since by ye power of Nature."<sup>24</sup> Likewise, "the gravitating attraction of ye earth" may "be caused by the continual condensation of some other such like aethereal spirit; not of ye main body of flegmatic aether, but of something very thinly & subtilly diffused through it perhaps of an unctuous



or gummy tenacious & springy nature.”<sup>25</sup> Newton maintains, however, that light “is neither this aether nor its vibrating motion but something of a different kind propagated from lucid bodies.”<sup>26</sup> These inconsistencies are somewhat clarified in the *Opticks*. Here Newton restates the corpuscularian theory as required by the evidence that light travels in straight lines: “Are not the Rays of Light very small Bodies emitted from shining Substances? For such Bodies will pass through uniform Mediums in right Lines without bending into the Shadow, which is the Nature of the Rays of Light.”<sup>27</sup> The theory of an ethereal medium is retained to explain the reflection and refraction of light.<sup>28</sup> That is, Newton combines the wave-theory with the corpuscle-theory by supposing that light is transmitted as corpuscles and reflected and refracted as contextures of an ether. Newton thus commits himself to two conceptions of space, as an ethereal plenum and as a void of absolute vacuity. These two conceptions lead to and justify two different conceptions of gravity, as a force communicated between bodies at a distance by an ethereal medium acting mechanically and as a force impressed on bodies by the causal presence of God.

In the public imagination these complexities tended to simplify. Perhaps because the augmented second edition of the *Opticks*, in which the ethereal hypothesis is most fully stated, was not published until 1718, Newton was generally understood, during the quarter-century after the appearance of the *Principia*, to have shown the necessity to the operation of gravitational law of the immediate presence of God, comprehending all things “as it were in his Sensory.” This conception of natural law as a continuing exercise of divine power supported the belief that the curse did not extend to “the changing of the principles of nature in the earth it selfe . . . much lesse that it reached unto the heavens.” It emphasized the identity of the original and present states of the world, indicating that both signify the order of divine law and, further, the substantial presence of God. In both of these ways the *Principia* acted to reinforce the conceptions of natural law formulated in the controversy over Burnet’s *Sacred Theory*



*of the Earth*: the reduction of planetary motion to constant and universal law gave authority to the belief that the principles of order applied not only to the earth but also to the heavens; at the same time, Newton's concept of the necessity to gravitation of an immaterial agency was, despite its ambiguities, used to authorize the belief that gravity is the immediate activity of God, the "direct *Concourse* of the Power of the *Author of Nature*,"<sup>29</sup> a "Divine energy and impression," "impress'd and infus'd" into matter "by an immaterial and divine Power."<sup>30</sup> The influence of the *Principia* led to the belief not only that the heavens represent the order of divine law but also that they are comprehended in the divine Sensory "wholly by their immediate presence to himself."

The first of Newton's letters to Bentley, dated December 10, 1692, was written a month after the latter had given the last of his Boyle sermons.<sup>31</sup> Nevertheless, Bentley's *Eight Sermons*, the first preached on the Boyle foundation, show close knowledge of the principles of gravitation. Like Newton, Bentley rejects the possibility of action at a distance, as "repugnant to Common Sense and Reason. 'Tis utterly unconceivable, that inanimate brute Matter . . . should operate upon and affect other Matter without mutual Contact; that distant Bodies should act upon each other through a *Vacuum* without the intervention of something else by and through which the action may be conveyed from one to the other."<sup>32</sup> Nor can matter be conceived to possess an innate capacity to act: "mutual Gravitation or spontaneous Attraction cannot possibly be innate and essential to Matter."<sup>33</sup> Bentley rejects the view that gravitational force is communicated by an ethereal plenum and assumes, on the contrary, that gravity is "above all Mechanism and material Causes, and procedes from a higher principle, a Divine energy and impression."<sup>34</sup> Hence gravity, the "great Basis of all Mechanism, is not it self Mechanical; but the immediate *Fiat* and Finger of God, and the Execution of the Divine Law."<sup>35</sup>

Woodward discusses the relationship of gravity and divine law at some length in his *Essay towards a Natural History*, published

three years later, in 1695. He contends that, as "any one *Body*, or Part of *Matter*, cannot be the *Cause* of its *own Gravity*," and as "the *Aether*, or *Materia subtilis* of the *Cartesians*, in what manner soever *moved* or *agitated*," cannot "produce such an *Effect* as is that of the *Gravity* of *Bodies*," so gravity "clearly surpasses all the *Powers* of meer *Nature*, and all the *Mechanism* of *Matter*." <sup>36</sup> Woodward insists that gravity "does not proceed from the *Efficiency* of any such *contingent* and *unstable Agents*, but stands on a *Basis* more *firm* and *stedfast*; being intirely owing to the direct *Concourse* of the *Power* of the *Author of Nature*, immediately in his *Hand*." <sup>37</sup>

In discussing gravity and law in the *New Theory of the Earth*, which appeared in the following year, Whiston, like Newton, makes the proviso that "when we use the terms of Attraction or Gravitation, we do not thereby determine the Physical Cause or Seat of any effects, as if some innate Power or *occult Quality* were to be suppos'd in Bodies . . . but only use such familiar Terms whereby our meaning may be easily understood, and the Effects of Nature explain'd, even where the last and proper efficient Cause is not mechanically assignable." On the contrary, "some continual Impulse from without, not any inherent Power really Existent within, is the Original of all." <sup>38</sup> Though Whiston uses the ethereal hypothesis, as does Newton, to explain the reflection and refraction of light, he denies that any "*Ethereal Substance*, or *Subtile Matter*, pervading the Pores of Bodies . . . might be imagin'd to be the cause of it [gravity] in other Bodies." <sup>39</sup> The operation of gravity is not material or mechanical, but is "*plainly above, besides, and contrary to the Nature of Matter*." <sup>40</sup> The world is supported by "one continued Exercise of a Divine and Immaterial Power, acting by fixt and constant Rules." <sup>41</sup>

In replying to the several sorts of deists in the Boyle sermons of 1705, Samuel Clarke, who had become interested in Newtonian theory at Cambridge and who had known Whiston since 1697, used this argument to confute those deists who limited the agency of God to the original establishment of natural law.

That most universal Principle of *Gravitation* it self . . . cannot

possibly be the result of any Motion originally impressed on Matter, but must of necessity be caused (either *immediately* or *mediately*) by . . . a Force or Power entirely different from that by which Matter acts on Matter. Which is . . . an evident demonstration, not only of the World's being *made originally* by a supreme Intelligent Cause; but moreover that it depends every Moment on some Superior Being, for the *Preservation* of its Frame; and that all the great Motions in it, are caused by *some* Immaterial Power, not having *originally* impressed a *certain Quantity of Motion* upon Matter, but *perpetually and actually* exerting it self every Moment in every part of the World.<sup>42</sup>

This conception of the relationship between God and natural law was a major issue in the controversy involving Leibniz and Clarke in 1715 and 1716. In his first Paper, Leibniz observes that the Newtonians have "a very odd Opinion concerning the Work of God. According to their Doctrine, God Almighty wants to *wind up* his Watch from Time to Time: Otherwise it would cease to move. He had not, it seems, sufficient Foresight to make it a perpetual Motion."<sup>43</sup> Clarke replied that "'tis not a *diminution*, but the true *Glory* of his Workmanship, that *nothing* is done without his *continual Government and Inspection*."<sup>44</sup> In his second and third replies, Clarke restates this position. The "*Wisdom of God* appears, not in making Nature (as an Artificer makes a Clock) capable of going on *Without him*," as Leibniz's doctrine of pre-established harmony implies, but in "framing *Originally* the *perfect and complete Idea* of a Work, which *begun and continues*, according to that Original perfect Idea, by the *Continual Uninterrupted Exercise* of his Power and Government."<sup>45</sup>

By the end of the second decade of the eighteenth century, this concept of the divine agency in natural law had become a commonplace. It was stated at length in 1715 by George Cheyne, Fellow of the Royal Society and author of a popular medical treatise on hypochondria. "Matter is not endow'd with Self-motion, nor with a Power to alter the Course in which it is put, it is meerly passive and must forever of it self continue in that State and that Course that it is settled in."<sup>46</sup> Further, bodies "can by no means act at a distance," for the "Efficacy of Matter is communicated

by immediate Contact.”<sup>47</sup> Nor can gravity be explained as a force acting in a material plenum, for “thereby these Parts of Matter which are the Cause of, or produce *Gravitation*, are upon this Supposition, destitute of Gravity.”<sup>48</sup> Gravity is, on the contrary, an immaterial agency, “an *original Impress*” which continues in matter “by virtue of the *Omnipotent Activity*, in the *Divine Nature*, of which it is a *Copy* or *Image* in the low Degree that is suitable to a gross Creature.”<sup>49</sup> In the Boyle sermons of 1721 and 1722, Brampton Gurdon, Rector of Stapleford Abbots in Essex, uses the same arguments to show that “those Laws could never have continued, unless there were an active Being in Nature, that was always ready to exert upon Matter a certain Force or Activity.”<sup>50</sup> Voltaire, in a popular handbook of Newtonian metaphysics translated into English in 1747, argues, like Clarke, that the principles worked out by Newton support a more adequate conception of the divine nature than those of Descartes or Leibniz. “Matter can have no Motion in itself, and must therefore receive it from somewhat else. — But it cannot receive it from other Matter, for that would be a Contradiction. An immaterial Cause must then produce the Motion. God is that immaterial Cause.”<sup>51</sup> “I have myself known many Persons, whom *Cartesianism* has induced to admit no other God but the Immensity of Things; whereas, on the contrary, I never met with any *Newtonian* who was not a Theist in the strictest Sense.”<sup>52</sup> At the end of the first half of the century, Colin Maclaurin, who had been Professor of Mathematics at Edinburgh from 1725 until his death in 1746, restated these ideas in his elementary manual of Newtonian theory. Using Clarke’s terms, Maclaurin distinguishes Newton’s view of the relationship between God and natural law from that of Leibniz. Leibniz had argued that “to imagine that God interposes” in “the material system” is “to lessen the skill of the Author, and the perfection of his work.” “Sir *Isaac Newton*,” on the contrary, “thought it altogether consistent with the notion of a most perfect Being, and even more agreeable to it, to suppose that he should form his work dependent upon himself.”<sup>53</sup> As God is the “first and supreme cause of all things, so it is most unaccountable to



exclude him out of nature, and represent him as an *intelligentia extramundana*," as according to Leibniz. "On the contrary, it is most natural to suppose him to be the chief mover throughout the whole universe, and that all other causes are dependent upon him." <sup>54</sup>

This conception of heavenly law as the present as well as the original activity of God qualified the belief, inherited from the early seventeenth century, that the original institution of divine law in the heavens had been destroyed by original sin in the Fall of Adam. By showing that heavenly law is an effect of the continuous agency of God, Newton's theory of planetary mechanics supported the belief that the Fall and the curse did not alter the principles of nature in the heavens, and that the present and original states of the world are the same, each representing not the consequences of sin but the will and action of God. This belief was further supported by the evidence provided in the *Principia* to show that the heavens, as such, represent the order of universal law.

"Surely the *wisdom* of God manifests itself in the skies." This belief concludes the final phase in the movement towards a conception of natural law as indicative of universal order, revealed in the heavens as well as the earth. For "the Celestial, or Heavenly Bodies, the Equability and Constancy of their Motions, the Certainty of their Periods and Revolutions, the Conveniency of their Order and Situations, argue them to be ordain'd and govern'd by Wisdom and Understanding." The heavens argue, not "Chance, Vanity, or Error," as in earlier belief, but "Rule, Order, and Constancy; the Effects and Arguments of Wisdom." <sup>55</sup> Thus John Ray summarizes, in *The Wisdom of God Manifested in the Works of the Creation*, both the premisses and the conclusions of the physico-theological argument. These principles are applied to an enumeration of the characters of order in both the heavens and the earth. The earth, like the heavens, represents, in its figure, position, and constitution, the order proper to the natural estate; the succession of seasons, seas, and mountains, which "have been



look'd upon by some as Warts, and superfluous Excrescencies" revealing the earth to be "a Heap of Rubbish and Ruins," are productions not of Adam's sin but of divine wisdom.<sup>56</sup>

This argument was worked out in great detail by William Derham, Vicar of Upminster in Essex and an active member of the Royal Society, in two popular treatises which appeared in 1713 and 1715. In the first, a collection of the Boyle sermons of 1711-12 published in twelve editions before 1754, Derham gives an exhaustive survey of the conditions of order in the earth, justifying mountains and seas as the "admirable tools of nature, contrived and ordered by the infinite Creator, to do one of its most useful works."<sup>57</sup> Burnet's theory is "very inconsistent with the belief of God's creating, especially his governing and ordering the world."<sup>58</sup> In his *Astro-Theology*, a handbook published two years later, Derham applies these principles to the heavenly order. In "this highly probable, I may say Physically certain, Theory of Gravity acting in the Motion of the Globes, we have another exquisite Nicety in the Works of the Creation, that justly deserves the greatest admiration and praise. That among so many immense, moving Masses, they should all observe their due Bounds, keep the most proper Paths appointed for their convenience and good, and at all times answer the great Ends to which they minister in the Creation."<sup>59</sup> Macrocosmic law reveals "such manifest strokes of wise order, counsel, and management, of the observance of Mathematical Proportions," that we cannot "conclude there was any thing less than Reason, Judgment, and Mathematical Skill in the case . . . or that this could be effected by any other Power, but that of an Intelligent Being, who had Wisdom and Power sufficient for such a Work";<sup>60</sup> "what a surprizing Scene do the Heavens afford us of the great CREATOR's Power!"<sup>61</sup>

A similar argument is developed by Cheyne and Whiston. The "beautiful Seasons of the Year," which are "Pleasant, Comfortable, yea, and Necessary in our present Circumstances," are a condition not of original sin but of divine wisdom.<sup>62</sup> Consideration of the beauty and use of mountains will show "of what Advantage these unsightly Moles (as some thought them) are to the

Accommodations and even Necessities of Living.”<sup>63</sup> There are, likewise, “legible and indelible *Characters of infinite Wisdom*, in the *Contrivance* of the whole, and of the several Parts of this admirable Fabrick of the *Universe*.”<sup>64</sup> Examination of the heavenly order, “as it is now discovered to us by the . . . laborious Searches of this and the last Age; and chiefly, by the surprizing Sagacity and Penetration of the Illustrious Sir Isaac Newton,” furnishes an argument that is the same as that by which “from the contemplation of a Building, we infer a Builder”; “let us,” therefore, “turn our Eyes from the Works to the Workman; from the Effects to the Cause,” from order to God.<sup>65</sup>

In the twenty years after Newton’s death in 1727, these concepts, formulated in the *Principia* and established in the public mind during the four decades after 1687, became common factors of the literary imagination.<sup>66</sup>

NEWTON, who first th’ almighty’s works display’d,  
And smooth’d that mirror, in whose polish’d face  
The great creator now conspicuous shines;

. . . . .

NEWTON demands the muse. . . .<sup>67</sup>

Thomson’s poem “To the Memory of Sir Isaac Newton,” one of several elegies published after 1727 to commemorate Newton’s death, indicates the conventional pattern assumed by the new poetic material. Newton,

by the blended power  
Of gravitation and projection, saw  
The whole in silent harmony revolve.<sup>68</sup>

This revelation of the “finished university of things, In all its order, magnitude, and parts,” demands worship of “that Power Who fills, sustains, and actuates the whole.”<sup>69</sup> For J. T. Desaguliers, divine, Fellow of the Royal Society, and a popular lecturer on natural philosophy, the Newtonian system of the world represents a celestial society in which order is law. “What Traces of Divine Wisdom do we see in the most regular Action of universal *Gravity*, (or Attraction) whose Power is diffus’d from the Sun to the very centers of all the Planets and Comets, and acts

upon the most distant of those Bodies, in as mathematical a Manner as it does upon the nearest?"<sup>70</sup> This "unchanging *law*," for David Mallet, is indicative of the "Maker's great establishment" which pervades "the frame of things."<sup>71</sup> For Samuel Boyse, it signifies the "vast design" of the architecture of the world: "What hand, Almighty Architect! but thine Could give the model of this vast design?"<sup>72</sup> Edward Young, in the ninth Night of *The Complaint*, gives an extended "Survey of the *Nocturnal* Heavens" in support of this view, that the heavens are "Nature's System of Divinity," signifying the original perfection of divine appointment: "An *Eden*, This! a PARADISE *unlost*!" As such, they represent not the disorder of the Fall or the curse but the order of divine wisdom. Devotion is daughter of astronomy.<sup>73</sup>

O! . . . Sir, said she, this is amazingly fine: I fancy myself travelling along with that little Earth in its course round the gilded Sun, as I know I am in reality with *that* on which I stand, round the *real* one.<sup>74</sup>

Nothing indicates more clearly the currency of the Newtonian principles of heavenly law during the first half of the eighteenth century than the popularity of the orrery, an elaborate mechanical representation of the solar system designed to illustrate the motion of the planets and moons. The first orrery was built about 1708, and by 1735 they were in such demand that Thomas Wright, Instrument-Maker to the King, set up a shop in Fleet Street where "Orrery's of different sorts" might be purchased.<sup>75</sup> The early orreries usually consisted of six concentric discs, set horizontally on a base about four feet in diameter. Each of the discs carried a sphere representing one of the six known planets;<sup>76</sup> at the center was a fixed sphere to represent the sun. A hand crank operated the whole system, the planets revolving around the sun, according to the law of gravity, at velocities proportionate to their actual periods of revolution.<sup>77</sup>

"I fancy myself travelling along with that little Earth in its course round the gilded Sun, as I know I am in reality with *that* on which I stand, round the *real* one." John Harris' *Lady* is an index of the contemporary social imagination.

## THE ANATOMY OF THE WORLD

Some nymphs prefer *astronomy* to *love*;  
Elope from mortal man, and range above.  
The fair philosopher to ROWLEY flies,  
Where, in a *box*, the whole creation lies:  
She sees the planets in their turns advance,  
And SCORNS, POITIER, thy sublunary dance:  
Of DESAGULIER she bespeaks fresh air;  
And WHISTON has *engagements* with the fair.<sup>78</sup>

The earliest known orrery was built by Thomas Tompion and George Graham in about 1708. It was simple in design, illustrating only the relative motions of the earth and moon. Five years later, John Rowley built the most famous of the early orreries for Charles Boyle, fourth Earl of Cork and Orrery. Rowley's first orrery, like that of Tompion and Graham, showed only the sun, earth, and moon. Its earliest notice appeared in *The Englishman* on October 29, 1713: "I sit down . . . at present to do Justice, and consequently great Honour, to that worthy and ingenious Artificer Mr. *John Rowley*; who has lately distinguished himself by the Invention of a Machine which illustrates, I may say demonstrates, a System of Astronomy, as far as it relates to the Motions of the Sun, Moon, and Earth, to the meanest Capacity."<sup>79</sup> Rowley later made more elaborate models, showing the inferior planets Mercury and Venus as well as the earth and moon.<sup>80</sup>

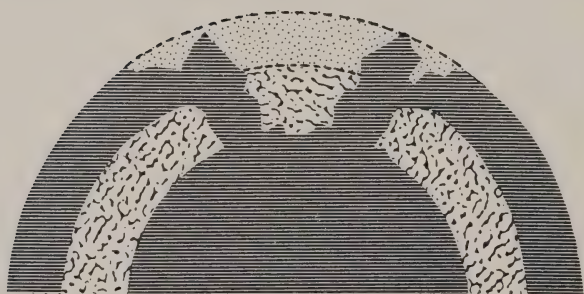
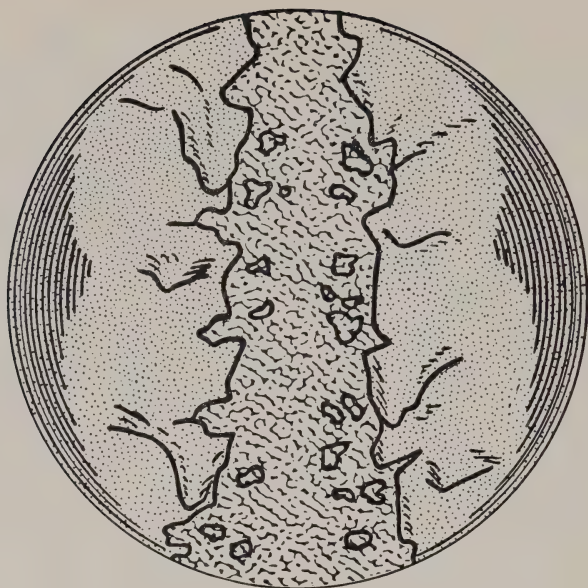
Thomas Wright was probably the first to build an orrery representing the whole solar system and showing Jupiter and Saturn with their moons as well as the inferior planets. A description and engraving of the finest of these, the great orrery made for the Royal Academy at Portsmouth in about 1731, appears in the treatise on the globes first published by Joseph Harris in 1732.<sup>81</sup> Between 1730 and 1735, Wright made a number of other orreries of various types and sizes for sale at his shop in Fleet Street. Harris observes that the "Great Encouragement Mr. WRIGHT has had for above ten Years past in making large ORRERYS, with the Motions of all the PLANETS and SATELLITES, and the true Motion of *Saturn's* Ring; has made him so ready and perfect, that Gentlemen may depend on having them made Reasonable and Sound, not liable to





*The Fall of man: an illumination from a twelfth-century manuscript. In the beginning man was created in the image of God. In sin he put on corruption, and suffered evil in both flesh and spirit.*





*Drawings used by Burnet to explain the Flood. He supposes that the surface of the original earth collapsed into the waters beneath, causing them to rise. When the water subsided, land and sea were divided and the mountains raised up.*

be out of Order. . . . He generally has some ready made by him, of different Prices." <sup>82</sup>

In 1746, James Ferguson, a popular scientific lecturer, published a pamphlet on *The Use of a New Orrery*, in which he describes an orrery which he had designed and built in 1744 and 1745. This, the most elaborate of the Ferguson orreries, became famous in the second half of the century through Ferguson's description and illustration of it in the ten editions of his *Astronomy Explained* issued between 1756 and 1799.<sup>83</sup> In about 1745, Benjamin Martin, lecturer and instrument-maker, designed an orrery "which any Gentleman may have made for a small Expence, and [which] will exhibit very justly the Motions of all the primary Planets about the Sun by Wheel-Work; and those that have Secondaries or Moons, may have them placed about their Primaries, moveable by the Hand, so that the whole shall be a just Representation of the *Solar System*, or true State of the Heavens." <sup>84</sup>

In the orrery "which any Gentleman may have made for a small Expence" the tradition of ideas deriving from Newton's *Principia* became a part of the social imagination. The principles of law employed in the replies to the *Sacred Theory* and in the *Principia* designate a major line of development connecting Donne's *Anatomie of the World* and Pope's *Essay on Man*. For Donne, the earth is "fragmentary rubbidge" and heaven is "crumbled out againe to his Atomies." God "rebuked the earth bitterly in that *Maledicta terra*, for *Adams* punishment" and "put into it a reproofe, a rebuke . . . which is, a sensible decay and age in the whole frame of the world." The principles of law developed at the end of the seventeenth century required a new reading of the curse, which was now conceived to apply, not to the principles of nature in either the earth or the heavens, but to the relationship between nature and man. This permitted the belief, made current as a theory of the earth in the replies to Burnet and as a theory of the heavens in the commentaries on the *Principia*, that natural law is a description not only of things as they should be but also of things as they are.

## THE ANATOMY OF THE WORLD

A second and correlative line of development is defined by a further contrast between the *Anatomie* and the *Essay on Man*.

Shee, shee is dead; shee's dead: when thou  
knowest this,
Thou knowest how poore a trifling thing man is.

The death of Elizabeth Drury is symbolic of radical disorder not only in the natural estate of the earth and heavens but also in the moral estate of man. For Pope, the order of law is moral as well as natural:

The gen'ral ORDER, since the whole began,  
Is kept in Nature, and is kept in Man.

Denial, in the theory of the natural estate, of the effects of the curse is accompanied by denial, in the theory of the moral estate, of the effects of the Fall: "*what,*" as George Turnbull observes, "*I think I have proved, by thus endeavouring to account for moral as for natural things, amounts briefly to this, 'That order is kept in man, as well as in the other parts of nature within our observation.'*"

*PART THREE · ESSAY ON MAN*







## *The Two Orders*

THE belief that "*order is kept in man*" is not a logical correlative of the belief that order is kept in "*the other parts of nature within our observation*," or a necessary inference from it. A conception of the moral disorder of man was, indeed, juxtaposed in the literary mind with a conception of the natural order of the physical world during much of the earlier eighteenth century: "All is right, tho' man be wrong."<sup>1</sup> "Order's Standard," which governs the greater world of matter, is violated in the "neither World" of man,<sup>2</sup> for man alone "starts back from nature's rule."<sup>3</sup> The laws governing the natural world describe what is; those governing the moral world describe not what is but what ought to be.<sup>4</sup>

This distinction was supported by the publication in 1702 of *An Essay on the Origin of Evil* by William King, Archbishop of Dublin. The *Essay on the Origin of Evil* was an early attempt to account for the existence of evil in terms provided by the principles of order and law. As such, King's theodicy invites comparison with Milton's. In vindication of the ways of God to man, Milton proposed that both moral and natural evil derive from the Fall of man and the curse on the earth. King, unlike Milton, distinguishes between moral and natural evil. Moral evil he explains, in terms similar to Milton's, as a result of original sin; natural evil he accounts for, not as an effect of the Fall or the curse, but as a necessary condition of law. In both its positive form — "Pains, Uneasinesses, Inconveniencies and Disappointments of Appetites"

— and in its negative form — “the Absence of those Perfections or Advantages which exist elsewhere”<sup>5</sup> — natural evil is justified as a necessary limitation of existence. As “all created Beings are made out of Nothing, and on that account are necessarily imperfect; so all natural things have a relation to, or arise from, *Matter*, and on this account are necessarily subjected to natural Evils.”<sup>6</sup> The natural world contains the minimum of evil consistent with general law: “if the mundane System be taken together, if all the Parts and Seasons of it be compared with one another, we must believe that it could not possibly be better; if any part could be changed for the better, another would be worse . . . and that necessarily from the natural Imperfection of all Creatures.”<sup>7</sup> King recognized that this position involves the belief that natural evils proceed not from original sin but from the “original Condition of things, and are not permitted by God, but in order to prevent greater, which some perhaps may think repugnant to sacred History, and the Doctrine of Moses. For they will have it, that the abuse of Free-will was the Cause of all natural Evils, and that when God created every thing good and perfect in its kind, it was afterwards corrupted by Sin, and subjected to natural Evils: but this is asserted without Proof. For the Scripture no where teaches that there would have been no manner of natural Evil, if Man had not sinned.”<sup>8</sup>

King’s *Essay*, as well as the general approval it appears to have received,<sup>9</sup> suggests the direction in which common assumptions had moved since the publication of *Paradise Lost*. For Milton, both moral and natural evil are the result of sin. For King, moral and natural evil are distinct, in both kind and cause; moral evil is, as for Milton, a result of the Fall, natural evil a function not of sin but of general law and universal order.

The *Essay on the Origin of Evil*, juxtaposing as it does theories of natural order and moral disorder, suggests the outlines of a first phase in the development of concepts of natural and moral law. A second phase, involving the belief that “*order is kept in man, as well as in the other parts of nature*,” was initiated by the

## THE TWO ORDERS

supposition that moral as well as natural phenomena can be explained in terms of law. Pope's *Essay on Man* is the most representative statement of this scheme of belief. The derivation of Pope's *Essay* from King's is so obvious that it tends to obscure the differences between King's theodicy and Pope's.<sup>10</sup> Of the *Essay on Man* Edmund Law himself remarked: "Having formerly attempted to clear up some of the chief difficulties that occur in our conceptions of the Deity and his Providence, in some observations on Abp. King's *Essay on the Origin of Evil*; I have since had the pleasure of seeing those principles adopted by a late celebrated writer, and adorned with all the graces of poetry."<sup>11</sup> Pope begins, like King, with an account of natural evil as a condition of "gen'ral laws": "the first Almighty Cause Acts not by partial, but by gen'ral laws."<sup>12</sup> Partial evil, therefore, is general good.

Cease then, nor ORDER Imperfection name:  
Our proper bliss depends on what we blame.

. . . . .  
All Nature is but Art, unknown to thee;  
All Chance, Direction, which thou canst not see;  
All Discord, Harmony, not understood;  
All partial Evil, universal Good:  
And, spite of Pride, in erring Reason's spite,  
One truth is clear, "Whatever IS, is RIGHT."<sup>13</sup>

This principle of law Pope, unlike King, applies not only to natural but also to moral evil. As "plagues or earthquakes" are justified as effects not of the curse but of natural law, so "a Borgia, or a Catiline" is justified as an effect not of the Fall but of moral law.<sup>14</sup>

The gen'ral ORDER, since the whole began,  
Is kept in Nature, and is kept in Man.<sup>15</sup>

The extent of Pope's departure from the traditional position, in his formulation of a theory of moral and natural law in the *Essay on Man*, is indicated by the arguments used in a number of replies.<sup>16</sup> The earliest of these, a poetical essay on *Divine Wisdom and Providence*, appeared in 1737. The author rejects both the natural and the moral aspects of Pope's argument, denying that

"the present States of the natural and moral World" are "as perfect as their Creator originally designed them, and their Relation to the general Order of the Universe would admit."<sup>17</sup> He assumes rather the "Degeneracy and Corruption of Man" and argues that the "Irregularities and Disorders of Nature" are their consequence.<sup>18</sup> Both the "World *without*" and the "Mind *within*" are "disorder'd, but by Sin."<sup>19</sup> William Ayre adopts a similar position in his *Counterpart to Mr. Pope's Essay on Man*, published two years later. Ayre rejects Pope's conception of both moral and natural order, and denies that

all the monstrous Crimes, which Men commit,  
Are *universal Order*, Just and Fit;  
That Earthquakes, Whirlwinds, Deluges, and Flames,  
"All, all are *Order* under other Names. . . ." <sup>20</sup>

J. P. de Crousaz published two extensive commentaries on the *Essay on Man* in 1737 and 1738. In *An Examination of Mr Pope's Essay on Man*, translated into English by Mrs. Elizabeth Carter in 1739, Crousaz argues, against Pope, that moral evil is an expression of original sin and that natural evil is a consequence of the Fall and the curse.<sup>21</sup> In his later *Commentary*, translated in 1742 by Johnson, Crousaz observes ironically that, for Pope, "the Headach, Gravel, Stone, Gout, and Palsy" are "Circumstances that turn to the Advantage of the whole System of Things, and extend their beneficial Influences through all the Universe."<sup>22</sup> Similarly, of Pope's theory of moral order he inquires: "what Advantage can the most inventive Imagination conceive arising to the Universe in general from Cheats, Poysoners, Calumniators and Assassins, from Rapes, Perjuries and unnatural Lusts?" <sup>23</sup> Evil is the result, not of the constitution of law, but of the transgression of law in the Fall of Adam. In an anonymous reply to the *Essay* that appeared ten years later, in 1751, the author remarks that, for Pope, "the Perfection of the whole Creation taken together consists in a due Mixture of Good and Evil, that is, of Good, physical or natural, and moral, which is Virtue; and of Evil, physical, and moral, which is Vice. From whence it plainly follows, that if all Men were virtuous, or only less vicious than



## THE TWO ORDERS

they are, this World of ours at least, would go to Ruin.”<sup>24</sup> “Let the Wicked be wicked still therefore, and let the Saints sleep in the Dust; in a Word, let all Men keep their Ranks, or we shall all be crushed to Atoms by the sudden Hurl of the falling Heavens.”<sup>25</sup>

But by the middle of the century the idea set forth in the *Essay on Man*, that both moral and physical evil are inherent conditions of law, had become a literary commonplace. This conception, based on the supposition that “all Truth, *moral* as well as *natural*, is analogous,” had been used as early as 1720 by John Clarke, Dean of Salisbury, in his Boyle sermons of that year. The wisdom of God is revealed, for Clarke, in the moral as well as the material world. “*As the true Way to judge of the Beauty and Perfection of the Natural World, is to examine into those Laws by which Material Things are at present governed*” — the modifier is important — “*So likewise the true Way to judge of the Harmony and Excellency of the Moral World, is to consider the Powers and Faculties of intelligent Agents.*”<sup>26</sup> The *present* state of both the moral and material worlds corresponds, despite the Fall, to its original constitution.<sup>27</sup> This belief is the first premiss of George Turnbull’s *Principles of Moral Philosophy*. Published in 1740 as an “Enquiry Into the wise and good Government of the Moral World,” Turnbull’s treatise is “*an attempt*,” like *Paradise Lost* and the *Essay on Man*, “to vindicate human nature, and the ways of god to man.”<sup>28</sup> To vindicate the ways of God is, for Turnbull, to vindicate “human nature”; not to show, with Milton, that evil is a consequence of human sin, but to show, with Pope, that it is a necessary product of general law. This supposition, that evil is a condition of moral as well as natural law, is employed in a similar way in an anonymous poem on *Nature*, published in 1747 to show that “every Part in the Moral World is, in a beautiful Variety, regularly ordered and adjusted, to answer the several Exigencies of Things, and to compleat the Harmony of the Universe.”<sup>29</sup> In his *Free Inquiry into the Nature and Origin of Evil*, a compendium of commonplace ideas which appeared in 1757, Soame Jenyns restates the argument of Pope’s theodicy in its simplest form:



God is the author, if it may be so expressed, of all the natural evils in the universe; that is, of the fewest possible in the nature of things; and why may he not be the author of all moral evil in the same manner, and on the same principle? If natural evil owes its existence to necessity, why may not moral? If misery brings with it its utility, why may not wickedness?

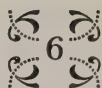
"If storms and earthquakes break not Heav'n's design,  
"Why then a Borgia or a Cataline?"<sup>30</sup>

For King, moral and natural evil are distinct in both cause and quality; moral evil is the consequence of sin, natural evil a condition of law. For Pope, both natural and moral evil are conditions of law and as such representative of order. This theory of evil derives, in Pope, from the supposition that the concepts of law established in the literary imagination during the preceding decades are applicable not only to natural but also to moral phenomena. It derives, more precisely, from the application to the moral as well as the natural order of a conception of law as a description of effects rather than a statement of obligation. For Milton, moral law is an imperative statement of the divine will and sin is disobedience.

Of Mans First Disobedience, and the Fruit  
Of that Forbidden Tree, whose mortal tast  
Brought Death into the World, and all our woe,  
. . . . .  
Sing Heav'nly Muse. . . .<sup>31</sup>

For Pope, moral law is an indicative statement of universal order and sin its necessary condition.

The gen'ral ORDER, since the whole began,  
Is kept in Nature, and is kept in Man.



## *The Reason and Fitness of Things*

THE idea that moral law is an imperative statement derives from the belief that the standard of moral values is provided by the will of God; the idea that moral law is an indicative statement derives from the belief that the moral standard is provided by the nature of man.

And Reason raise o'er Instinct as you can,  
In this 'tis God directs, in that 'tis Man.<sup>1</sup>

The prevailing conception of moral law is in each case controlled by a theory of moral standards. The supposition that moral values depend upon the divine will rather than the nature of man leads to the doctrines of free will, sin, the Fall, and moral disorder. The belief that moral values depend upon the nature of man rather than the will of God leads to the doctrines of natural virtue and moral order. Consequently, the development of a prevailing conception of moral order is associated with the development of a theory of natural morality. This process may be considered as operating, in the century after 1650, in two major movements. In the first, discernible after 1651 in the replies to Hobbes and reaching full elaboration in Samuel Clarke's Boyle sermons of 1705, the belief that the standard of morality is provided by the will of God confronted the belief that moral standards are derivable from reason, which is prior to the divine will. In the second, reaching full elaboration in Hutcheson's *Inquiry into the Original of our Ideas of Beauty and Virtue* in 1725 but discernible

much earlier than 1699, when Shaftesbury's *Inquiry* was published, the belief that moral standards are derived from reason was confronted by the belief that moral law is a function of the passions. Transitions within each phase and from the first to the second are complex and irregular. There is, nevertheless, an observable shift of interests and assumptions. In the first phase the center of controversy moved, in general, from the doctrine of divine will to the doctrine of reason; in the second phase it moved from the doctrine of reason to the doctrine of the affections.

In *Leviathan*, published in 1651, Hobbes had defined reason in such a way as to deprive rational activity of any absolute ethical relevance: "the *Law of Nature*, that I may define it, is the Dictate of right Reason, conversant about those things which are either to be done, or omitted for the constant preservation of Life, and Members, as much as in us lyes."<sup>2</sup> Reason is not a moral faculty but a function of self-interest. "Reason is no less of the Nature of man then Passion, and is the same in all men, because all men agree in the Will to be directed and governed in the way to that which they desire to attain, namely, their own Good, which is the work of Reason. There can therefore be no other Law of Nature then Reason, nor no other Precepts of *Natural Law*, then those which declare unto us the wayes of Peace, where the same may be obtained, and of Defence where it may not."<sup>3</sup> The law of nature is a principle of self-interest deduced by reason. "A LAW OF NATURE, (*Lex Naturalis*,) is a Precept, or generall Rule, found out by Reason, by which a man is forbidden to do, that, which is destructive of his life, or taketh away the means of preserving the same; and to omit, that, by which he thinketh it may be best preserved."<sup>4</sup>

The adverse contemporary reception of the *Leviathan*<sup>5</sup> did not derive primarily from disagreement either with Hobbes' theory of the moral depravity of man or with his theory of absolute sovereignty. The opposition of a doctrine of natural virtue to Hobbes' doctrine of the natural state of war did not become common until the end of the century, when it appeared in conjunc-

tion not with a rational but with an affective system of ethics. Likewise, the theory of sovereignty stated in *De Cive* and the *Leviathan* was not, despite significant differences, fundamentally inconsistent with the orthodox theory of kingship, and was not effectively opposed until after the revolution of 1688.<sup>6</sup> The center of disagreement was rather in Hobbes' divorce of reason from moral law. William Lucy, who published a series of replies to the *Leviathan* both before and after the Restoration when he became Bishop of St. David's, argues, for example, that "the law of nature gives not a man leave to do what he will for [his] preservation, &c. . . . but onely such things as are just and according to right, reason, and the most publike and greatest intendments of nature."<sup>7</sup> In his *Catching of Leviathan*, published in 1658, John Bramhall, Bishop of Derry, states the case in terms of the distinction between absolute moral law and relative civil law, a distinction which Hobbes, arguing from the supposition that reason and expediency are the same, had eliminated. "His sixth paradox is a rapper, *The civill lawes are the rules of good and evill, just and unjust, honest and dishonest, and therefore what the lawgiver commands that is to be accounted good, what he forbids bad.*"<sup>8</sup> This principle proceeds, in the *Leviathan*, from the assumption that the "only end of all the laws of nature" is the "*long conservation of a mans life and members,*" which is asserted "most untruely," for the end of law is not expediency but right.<sup>9</sup> The position adopted by Lucy and Bramhall is stated still more clearly in a pamphlet published two years later, in 1660, by Roger Coke. "If," Coke observes, "Mr. *Hobbs* had by a state of Nature understood such a state as *S. Paul* does, *viz.* of men who have only the Law of Nature, and not Gods Divine Law supernaturally revealed in the Scriptures, to be their rule and guide; and that men in such a state not having the Law, may by Nature do the things contained in the Law, (for this Law is ingraven in the hearts of all men) he should have disputed without an Adversary for me."<sup>10</sup> The state of nature is not that state in which moral law, in the absence of society, is determined by private interest but that state



in which the law is determined, in the absence of revelation, by reason as it apprehends the nature of things.

After 1670, this formula became increasingly common in commentaries on the *Leviathan*. Its statement in that year by Thomas Tenison, later Archbishop of Canterbury, is of great interest, because Tenison provides a significant definition of terms. Hobbes had derived "Natural Laws," not "from the Reason and Equity of their Nature, but from carnal self-preservation."<sup>11</sup> Tenison proposes, on the contrary, that "the right dictate of Natural Reason obliging man (not yet suppos'd a member of the great Community) to an orderly behavior towards God, and his Parents, as also towards his own Soul and Body, in cases which concern, and which concern not, life and death, is the Law of Nature."<sup>12</sup> Tenison then offers a definition of the moral office of reason: "right Reason, which, together with the superadded act of Conscience, is the Law of Nature, consisteth in the notice of that moral congruity or proportion which is betwixt the action (of mind, or tongue, or hand), and the object, considered relatively in their proper circumstances."<sup>13</sup> Rational law is defined in terms of itself (the "congruity . . . betwixt the action . . . and the object"), not in terms of divine will, to which, indeed, "the rule of eternal Reason" is antecedent.<sup>14</sup>

This distinction between reason as relative to self-interest and reason as deriving (whether or not it is sufficient without revelation) from the absolute nature of things, is restated in somewhat different form by John Eachard, later Master of Catharine Hall, Cambridge, in a dialogue on *Mr Hobbs's State of Nature* which appeared in 1672. Philautus, who represents Hobbes, contends that the "good and bad things, all fetched from reason," are "good and bad, not because they are so inwardly in themselves, but because they either conduce to peace in general, or are for a man's own quiet and safety, or for his health, or profit, or recreation, or for the advantage of his Family or Relations, or are a hinderance of these: in short, because they are for, or against a man's interest."<sup>15</sup> Eachard illustrates the consequences of this position with a par-



able of Roger, Dick, Tumbler, and Towser, each of whom identifies right with interest in the state of nature:

give them a *view*, *unmuzzle*, and let them off the *slip*. *And now hola Roger! over with him there Dick; collar him close Towser; gripe him under the small ribs, and pluck out his spleen Tumbler. O bravely recovered! Now hold it out for the credit of the state of nature, and the family of the Dicks. Now fall upon his chest, and strike his heart out of his mouth, and dash that Rogues eye out of the Island.*<sup>16</sup>

Timothy, who represents the views of the author, contends on the contrary that the law of reason, which precedes and authorizes civil law, is the law of God: though "*a man in the state of Nature cannot be injurious to another, because there are as yet no Humane Lawes; yet in such a state he may offend God.*"<sup>17</sup>

In an anonymous tract on *The Great Law of Nature . . . Vindicated from Mr. Hobbes his Abuses*, published in 1673, the author, making a similar distinction between civil injury and moral offense, argues that moral law is precedent to both private interest and the laws of society. "By Right Reason, I do not mean as Mr. *Hobbes*, *De Cive*, pag. 21. every mans private Reason; for who but himself did ever call this Right Reason? but I mean what is commonly hereby meant, an unerring Reason, or that which proceeds always upon true Principles, and thence deduces true Consequences and Conclusions."<sup>18</sup> The "grounds or foundations of good and evil" are not relative to interest or to society, but derive from "the very nature of man, so as to oblige him to act according to them, though there were no Civil Magistrate in the world, or though the Magistrate positively command the contrary."<sup>19</sup>

These principles were fully elaborated by James Lowde, Rector of Settrington in Yorkshire, who in 1694 published *A Discourse Concerning the Nature of Man* in which he examines the principles of Hobbes "relating hereunto." Lowde's *Discourse* is of unusual importance because it indicates the context within which the theory of rational law developed. The law of reason is, for Lowde as for Tenison, antecedent to the will of God. This belief

Lowde justifies by asserting that the divine reason is precedent, in the nature of the deity, to the divine will — “the *Divine Will and Omnipotence it self has no Dominion over the Divine Understanding.*”<sup>20</sup> From it the moral reason derives. God “hath communicated something of a Divine Ray, relating both to Intellectual and Moral Notices, into the very constitution of our humane Nature; something that is both a light and a law unto us: and this the very Nature and end of such Creatures (as God design’d to make us, that is, Rational and Religious) did require.”<sup>21</sup> Moral judgment is, therefore, “*Founded in Nature,*” not in “Inspiration from God.”<sup>22</sup> Lowde, however, explicitly distinguishes this view from that in which moral law is regarded as a description of necessary effects: these “natural Notions are not so imprinted upon the Soul, as that they naturally and necessarily exert themselves.”<sup>23</sup> The law of reason derives, not from the will of God, but from the nature of man; as a law, however, it defines values and does not describe effects.

The theory of moral reason advanced in the several replies to the *Leviathan* was directed against Hobbes’ conception of reason as relative to self-interest. It was not necessarily distinguished from a conception of reason as dependent, for its sanction, on the will of God. Hobbes had argued that self-interest *constitutes* the law, which is *apprehended* by reason. Against him it was repeatedly asserted that the law which is apprehended by reason is an absolute law, constituted not by interest but by the nature of things. But is the nature of things defined by the will of God or by reason itself? Is the law, in other words, constituted by the divine will and apprehended by reason, or does reason apprehend a law which it also constitutes? Is reason the law because it is willed by God, or is it willed by God because it is rational?

Is, for example, that “right” and “reason” which for Lucy defines the law of nature an independent principle or is it derived from the will of God? Either view could be used to oppose Hobbes’ contention that the only end of natural law is self-preservation, and in fact Lucy does not make an effective distinction.

Bramhall distinguishes between civil law, which is relative, and moral or natural law, which is absolute, but does not distinguish between the functions of reason and divine will in establishing the law of nature. The grounds of good and evil are, for the author of *The Great Law of Nature*, independent of the civil laws of the magistrate, but does this mean that they are precedent to the will of God? In Tenison's treatise, the outlines of a theory of reason as an autonomous standard of moral activity are more clearly discernible. Reason Tenison defines, not as a medium of knowledge, but as a principle of authority. Thus reason is not the recognition of divine will but the notice of that "congruity or proportion which is betwixt the action . . . and the object."<sup>24</sup> James Lowde is unambiguous in his statement of a theory of reason as "both a light *and* a law unto us," justifying his view with the assertion that reason is prior to will in the divine nature.<sup>25</sup>

This distinction between reason as a medium of knowledge (the light of nature) and reason as a principle of authority (the law of nature) became a major center of controversy. The concept of reason as a medium of knowledge supported the belief that moral law, though apprehended by reason, is constituted by divine will; the concept of reason as a principle of authority could be used to support the contrary belief that moral law, though consistent with the will of God, is constituted by reason itself. Thus, adopting the first alternative, Culverwel, in his *Discourse Of the Light of Nature* (1652), supposes that though the law of nature is knowable to reason it is established by the will of God. Nothing can impose "a Moral engagement upon it self, or binde its own being: for this would make the very same being superior to it self, as it gives a Law, and inferiour to it self, as it must obey it."<sup>26</sup> Law consists "*in actu voluntatis*; not the understanding, but the will of a Law-giver makes a Law."<sup>27</sup> Though "the publishing and manifestation of this Law" is the office of the reason, "*the Candle of the Lord*, which God has lighted up for the discovery of his owne Lawes," the authority of the law and the obligation it imposes "principally depend upon the Sovereignty and Authority of God himself."<sup>28</sup> In his *Essays on the Law of*

*Nature*, written between 1661 and 1664, Locke gives a rather full account of the operation of reason in acquiring knowledge which in many respects anticipates the argument of the *Essay*. But he makes it clear that the function of reason so conceived is to know and not to oblige: "this law of nature can be described as being the decree of the divine will *discernible* by the light of nature and indicating what is and what is not in conformity with rational nature, and for this very reason commanding or prohibiting. It appears to me less correctly termed by some people the *dictate* of reason, since reason does not so much establish and pronounce this law of nature as search for it and discover it as a law enacted by a superior power and implanted in our hearts. Neither is reason so much the maker of that law as its interpreter, unless, violating the dignity of the supreme legislator, we wish to make reason responsible for that received law which it merely investigates."<sup>29</sup> In 1672, Richard Cumberland, later Bishop of Peterborough, published an elaborate Latin treatise on the law of nature which was translated and abridged in 1692 by Sir James Tyrrell, close friend of Locke and author of a series of tracts against Filmer's theory of absolute sovereignty. For Cumberland, the law of nature is the common good of rationals, requiring the "*most universal Love, or most diffusive Benevolence of all Rational Beings towards each other.*"<sup>30</sup> This law is knowable to reason through experience; since, however, there are no inscribed principles of knowledge in the mind, reason cannot itself constitute the law. "For I will here suppose the Soul, or Mind of Man, to be at first, *rasa Tabula*, like fair Paper, that hath no connate Character or Idea's imprinted upon it (as that Learned Theorist Mr. *Lock* hath, I suppose, fully proved)." This means that the reason cannot determine "what is the fittest and best Thing, or Action, any Person can perform in a Case proposed" except by experience.<sup>31</sup> The law which is knowable through experience is sanctioned by the will of God: "all our Obligation to the Laws of Nature, is at last resolved into that absolute Dominion, which GOD, as he is the Great Creator and Preserver of Mankind, hath over us."



GOD having made this Discovery of his Will unto us, we thereupon lie under a sufficient Obligation, to observe this great Law of endeavouring this Common Good: To prove which, I first suppose that Obligation to an Action enjoyned by the natural Law, is the necessary and constant effect thereof, upon every Person subject to it; and that this immediately results from its own Nature, this Law being always just and right, as the Will of GOD, the Legislator, is, from whence it proceeds: So that tho' I understand an Obligation to Active Obedience to be the immediate effect of this Law, yet that it primarily flows from that Will of GOD, which ordained this Law. . . .<sup>32</sup>

In Cumberland there is, however, a shift of emphasis. Cumberland and Tyrrell are preoccupied not with the law but with the moral agent: what does the law require of the agent and how are these requirements adapted to his nature? They insist on the congruence of both the reason and the affections of the agent to the requirements of the law. In practice, therefore, the effective moral sanction is "that inward Pleasure and Satisfaction, which all Rational and Good-natured Persons must necessarily take in the *due exercise of those sweeter Passions* of Love, Joy, and Desire."<sup>33</sup> The implication is that virtue consists, not in obedience to an extrinsic law which is consistent with the reason and apprehended by it, but in the due exercise of the passions, which furnish a law that is obligatory, if not in itself, then by virtue of the authority of God. This shift is noticeable also in a treatise published in 1681 by Samuel Parker, a Fellow of the Royal Society who became Bishop of Oxford. He too assumes that what "is proper or necessary to make a Law" is, "first, to declare the Will or Command of the Legislatour; secondly, to enforce Obedience to it by consequent Rewards and Penalties." The law of nature is the will of God made obligatory by its establishment in "the very Order and Frame of Nature," where there is "the same necessary connexion between the Duty and the Reward as there is between every natural Cause and Effect."<sup>34</sup> As such, it is knowable to reason, not in the sense that the reason possesses inscribed "Notions or Instincts of Good and Evil," but in that knowledge is available from "experience and observation."<sup>35</sup> Natural law does not derive



from propositions "imprinted upon the Minds of Men . . . by attending to and reflecting upon which they [are] instructed or bound to govern their moral Actions," but from "Observations of Nature."<sup>36</sup> In practice, however, Parker, like Cumberland, concentrates on the agent rather than the law, and this leads him to make statements about the state of nature (what is) which apply only, on his own terms, to the law of nature (what ought to be): "if that be the State of Nature, to which Nature it self would guide and direct reasonable Men, though they were under no obligation of Laws or Covenants no nor Deity, then certainly the State of Nature must be a State of Peace and Friendship."<sup>37</sup> The implication here, as in Cumberland, is that reason is a law to itself, independent of the will of God, not merely apprehending but also constituting the law. And Parker admits that reason may be not "onely an acquired habit and result of Experience" but an "innate faculty" governing the "appetites and passions" according to its own principles.<sup>38</sup> Consequently, he contends that moral sanctions are provided not only by the dispensations of providence but also by the "Constitution of all things within us," by the inward satisfaction of both the reason and the passions.<sup>39</sup>

This transition is discernible in several of the sermons of John Tillotson, Archbishop of Canterbury from 1691 to 1694. Tillotson concedes not only that the "difference of good and evil is naturally *known*" but also that the "notions of righteousness, and goodness, and truth, are fixed antecedently to any Divine revelation" of the will of God, which "supposeth the nature of them to be known . . . and supposeth, likewise, the obligation of them, being branches of the law of nature, and essential parts of that religion which is born with us, and 'written upon our hearts,' and makes us 'a law to ourselves.'"<sup>40</sup> Clearly, Tillotson conceives of the law, not simply as being knowable by rational processes, but as being inscribed in the reason. This does not mean, of course, that for Tillotson the office of reason is exclusive of that of revelation, which, indeed, "offers us more powerful arguments, and a greater assistance to the performance of those duties."<sup>41</sup> It does, however, mean that for Tillotson obligation is created not by will,

whether revealed or apprehended by reason, but by reason itself. In his *Treatise concerning Eternal and Immutable Morality*, Ralph Cudworth distinguishes even more emphatically between reason and will in the constitution of moral law. It is "so far from being true," Cudworth maintains, "that all *Moral Good and Evil, Just and Unjust* are meer Arbitrary and Factitious things, that are created wholly by Will; that (if we would speak properly) we must needs say that nothing is *Morally Good or Evil, Just or Unjust* by meer Will without Nature, because every thing is what it is by Nature, and not by Will."<sup>42</sup> In his *Remarks on Locke's Essay concerning Human Understanding*, published in three parts between 1697 and 1699, Thomas Burnet redefines this position in a critical analysis of Locke's negative theory of innate ideas. Arguing that the distinction between good and evil is derivable from the nature of things by reason, Burnet remarks that "I do not find that my Eyes, Ears, Nostrils, or any other outward Senses, make any Distinction of these Things." "You seem (p. 192.§.5.) to resolve all into the Will and Power of the Law-Maker: But has the Will of the Law-Maker no Rule to go by? And is not that which is a Rule to his Will, a Rule also to ours, and indeed the Original Rule?"<sup>43</sup> In both the *Second* and *Third Remarks*, the former published in 1697, the latter in 1699, Burnet restates his original position. Moral law is independent, in both authority and obligation, of the will of God, wherefore "Those that were without a Law were a Law to themselves, doing by nature the things contained in the Law."<sup>44</sup>

This was the context of ideas when Samuel Clarke preached the first of the Boyle sermons of 1705 in St. Paul's Cathedral. Clarke's eight sermons, collected and published in the following year as *A Discourse Concerning the Unchangeable Obligations of Natural Religion*, are of major importance because they offer a definition of the moral reason in terms other than itself. Of the view that "there is no such real Difference *originally, necessarily, and absolutely* in the Nature of Things; but that all Obligation of *Duty to God*, arises merely from his absolutely *irresistible Power*," Clarke observes: "Some things are in their own nature *Good and Reasonable* and *Fit* to be done; . . . these receive not

their obligatory power, from any Law or Authority; but are only declared, confirmed and inforced by penalties, upon such as would not perhaps be governed by right Reason only.”<sup>45</sup> The will of God is the sanction, not the ground of the law, which is “antecedent . . . even to *this* Consideration, of its being the positive Will or Command of *God* himself.”<sup>46</sup> As in arithmetic, so “*in moral Matters, there are certain necessary and unalterable Respects or Relations of Things, which have not their Original from arbitrary and positive Constitution, but are of eternal necessity in their own Nature.*”<sup>47</sup> The moral office of reason is to apprehend the “necessary and eternal *different Relations*, that different Things bear one to another”; “these eternal and necessary differences of Things, make it *fit and reasonable* for Creatures so to act; they cause it to be their *Duty*, or lay an *Obligation* upon them, so to do; even separate from the consideration of these Rules being the *positive Will or Command of God.*”<sup>48</sup> Rational law is congruent to the will of God, but it is reason itself, by determining the relation between an act and the agent, which imposes the obligation possessed by the law.

This definition of the moral function of reason was restated and modified in 1722 by William Wollaston. Wollaston, like Clarke, regards “*right reason*” as “the law, by which our acts are to be judged.”<sup>49</sup> But whereas Clarke had defined right reason in terms of the fitness of an act to the relations of things, Wollaston defines it in terms of truth: “if by right reason is meant that, which is found by the right use of our rational faculties, this is the same with truth”;<sup>50</sup> all acts “*which interfere with truth* (i.e. deny any proposition to be true, which is true; or suppose any thing not to be what it is, in any regard) *are morally evil, in some degree or other: the forbearing such acts, and the acting in opposition to such omissions are morally good: and when any thing may be either done, or not done, equally without the violation of truth, that thing is indifferent.*”<sup>51</sup> Thus, an act of theft is a false assertion with regard to property; an act of ingratitude is a denial of the truth of obligation. For Clarke, an act which is contrary to moral law is so because it is inconsistent with the nature and rea-

son of things. For Wollaston, it is so because it is inconsistent with truth. That both definitions equate the rational standard with a principle that is, in the last analysis, a derivative of reason itself was not immediately apparent, nor did it become so until after the publication of Hutcheson's *Inquiry* and Hume's *Treatise of Human Nature*.

During the first three decades of the eighteenth century, the theory of moral law as a function of reason, formulated by Clarke and Wollaston, remained a center of controversy. In an "Essay upon the Laws of Nature" published in 1716, Sir Richard Blackmore observed of Clarke's system that "Laws must be the Laws of some Person invested with Legislative Authority; and therefore if there be any antecedent to, or besides those of the Civil Magistrate, they must be the Precepts of the Supream Being. I must acknowledge, that the Moral Goodness and Beauty, the Wickedness and Deformity of Actions, which some great Divines derive from the intrinsick Nature of Things, without any Consideration of a Law that commands or prohibits them, is what I am not able to conceive."<sup>52</sup> This position was restated in two important critiques of the rationalist theory published in 1725 and 1727 by John Clarke of Hull.<sup>53</sup> In the first, *An Examination Of the Notion of Moral Good and Evil, Advanced in a late Book, entitled, The Religion of Nature delineated*, Clarke argues that reason is insufficient as a moral standard because, whether or not it can apprehend moral truth, it cannot account for moral obligation. That is, an act contrary to moral law is not, as Wollaston supposed, a denial of truth, but a denial of the obligation the truth imposes. In the second, a treatise on the *Foundation of Morality in Theory and Practice*, Clarke reformulates the traditional view that obligation must be derived from a principle of authority extrinsic to the agent himself, proposing that this principle of authority is furnished by the will of God. "Mankind cannot be said to be under any Duty or Obligation to observe moral Rules, upon the supposition, that they are not the positive Will and Command of God."<sup>54</sup> Thomas Johnson, Fellow of Magdalene College, Cam-



bridge and author of an *Essay on Moral Obligation* published in 1731, contends, like John Clarke, that rational judgment depends on standards of value outside itself; "we must have a pre-established Notion or Opinion, what is morally Good or Evil before it can operate."<sup>55</sup> Or, in the language of a sermon preached by Johnson in the same year: a "true Principle of Religion . . . can be only a Principle of *obedience* to the will of God."<sup>56</sup> In defense of this view, Johnson employs Locke's critique of innate ideas: the contrary opinion, that reason constitutes the law, depends, he says, on the "old exploded Hypothesis of . . . primary Notions and Characters stamp'd upon the Mind of Man originally, and so deeply imprinted as never to be eras'd."<sup>57</sup> Reason is not independent or absolute, but dependent and relative: "the Terms, *Fitness* and *Unfitness*, are . . . always applied to *Means*; and therefore necessarily referred to some *End*," which is the will of God.<sup>58</sup>

Since 1705, however, the discernible area of agreement had moved, despite frequent qualification, from the belief that moral law is constituted by the divine will towards the belief that the law is constituted by reason. This belief was directed with increasing frequency, especially after the appearance of Hutcheson's *Inquiry* in 1725, not against the supposition that the ground of law is the divine will but against the supposition that its ground lies in the passions or affections.<sup>59</sup> This, for example, is the position adopted by Joseph Butler, later Bishop of Durham. In the Preface and first three of his *Fifteen Sermons*, which appeared in 1726, Butler deals with the problems raised by a definition of moral law in terms of human nature. For Butler, such a definition involves a hierarchical scheme of the principles of action: "one of those Principles of Action, Conscience or Reflection, compared with the rest as they all stand together in the Nature of Man, plainly bears upon it Marks of Authority over all the rest, and claims the absolute Direction of them all, to allow or forbid their Gratification."<sup>60</sup> "The not taking into Consideration this Authority, which is implied in the Idea of reflex Approbation or Disapprobation, seems a material Deficiency or Omission in Lord



*Shaftsbury's Inquiry concerning Virtue.*"<sup>61</sup> Moral law derives not from the passions or affections but from reason: "the Principle of Reflection or Conscience being compared with the various Appetites, Passions, and Affections in Men, the former is manifestly superiour and chief"; "how often soever the latter happens to prevail, it is meer *Usurpation*: The former remains in Nature and in Kind its Superiour; and every Instance of such Prevalence of the latter is an Instance of breaking in upon and Violation of the Constitution of Man."<sup>62</sup> In considering the problem of obligation raised by John Clarke—"allowing that Mankind hath the Rule of Right within himself, yet it may be asked, 'What Obligations are we under to attend to and follow it?'" — Butler is forced, as were Samuel Clarke and Wollaston, to circularity of argument. "The Question then carries its own Answer along with it. Your Obligation to obey this Law, is its being the Law of your Nature. That your Conscience approves of and attests to such a Course of Action, is itself alone an Obligation."<sup>63</sup>

Like Butler, John Balguy, Vicar of Northallerton in Yorkshire and a Prebend of Salisbury, argues, not from the distinction between divine and rational law, but from the distinction between the affective and rational activities. His *Letter to a Deist* (1726), which is devoted to a consideration of the argument of the *Inquiry concerning Virtue*, is addressed to an admirer of Shaftsbury. His treatise on *The Foundation of Moral Goodness* (1727–28) is a reply to Hutcheson's *Inquiry*: "it plainly appears that our Author does not consider this *natural Affection* or *Instinct*, merely as a Help or Incentive to Virtue, but as the true Ground and Foundation of it."<sup>64</sup> Balguy admits the "Reality of such Affections, and the *Usefulness* of them, in respect of human Nature"; he cannot, however, "look upon them as *essential* to Virtue; nor can I think that any *Instinct* has a Place in its Constitution."<sup>65</sup> On the contrary, he urges that virtue "be erected in the highest Part of our Nature; let Truth and right Reason be its immediate Supporters; and let our several Senses, Instincts, Affections and Interests, attend as ministerial and subservient to its sacred Purposes."<sup>66</sup>

The rational standard Balguy defines, in Clarke's terms, as "*the Conformity of our moral Actions to the Reasons of Things*"; the "CONFORMITY of such actions to REASON, or the RECTITUDE of them, is their Agreeableness to the Nature and Circumstances of the Agents and the Objects."<sup>67</sup> Rational approbation and obligation Balguy accounts for in terms of reason itself: "why then do we approve? or what justifies our *Approbation* of it? I answer in one Word, *Necessity*. The same Necessity which compels Men to assent to what is *true*, forces them to approve what is *right* and fit."<sup>68</sup> In the second part of the treatise, Balguy deals at length with Hutcheson's contention that reason itself is tautologous, and that, as a principle of action, it is dependent on the passions, arguing that reason, like instinct, is independent and self-explanatory.<sup>69</sup>

As late as 1743, Catharine Cockburn, author of a number of tracts on moral philosophy, distinguishes the view of "Dr. Clarke and his followers," who maintain that "the *fitness of things*" is the standard of moral value, from that of Hutcheson and Hume: by the fitness of things "they never understand, nor would I be understood to mean, a blind instinct, but a consciousness consequent upon the perceptions of the rational mind."<sup>70</sup> Indeed, her defense of Clarke against the conservative criticism of Edmund Law rests on this distinction: "there cannot easily be imagined two schemes more different, than that of founding virtue and *moral obligation* on a *moral sense*, considered as an *innate instinct*, and that of founding them on the nature, reason, and relations of things. These are the objects of the understanding, and can only be apprehended by reasoning and reflection, not by sense, or a *blind instinct*."<sup>71</sup>

The criticism of Hutcheson, and later of Hume, made it increasingly difficult, however, to maintain this distinction, to argue that reason is neither a tautology nor a function of passion. The first alternative led to the admission that the rational principles formulated by Samuel Clarke, Butler, and Balguy are in themselves without meaning. The second led to the admission that

#### THE REASON AND FITNESS OF THINGS

they are reducible to principles derived from the passions or affections. The theory of moral reason was in fact the first phase in the development of a theory of moral law as a function of instinct. According to this view, virtue is to men, who "without any Trouble or Violence upon themselves may be naturally Virtuous," what sweetness is to "Grapes and China Oranges." <sup>72</sup>



## *The Satisfaction of the Affections*

THE Generality of Moralists and Philosophers have hitherto agreed that there could be no Virtue without Self-denial; but a late Author, who is now much read by Men of Sense, is of a contrary Opinion, and imagines that Men without any Trouble or Violence upon themselves may be naturally Virtuous. He seems to require and expect Goodness in his Species, as we do a sweet Taste in Grapes and China Oranges, of which, if any of them are sour, we boldly pronounce that they are not come to that Perfection their Nature is capable of.<sup>1</sup>

The belief attributed by Mandeville to Shaftesbury did not originate in the *Characteristicks* but developed during the preceding half-century in conjunction with rational concepts of moral law.<sup>2</sup> As early as 1662, Henry More, in analyzing the moral reason, had assumed the dependence of rational judgment on intuitive processes. Though "*to act according to Nature or according to Reason, is in a rational Creature the same thing,*" moral judgment is not "barely to be placed in the Intellect; but her proper Seat must be called the *Boniform Faculty of the Soul.*"<sup>3</sup> That More considers the operations of the boniform faculty to be antecedent to reason is indicated by his analysis of moral standards in the Preface to his *Collection Of Several Philosophical Writings*. Moral values, More suggests, are derived from a "*Principle more noble and inward than Reason it self, and without which Reason will faulter, or at least reach but to mean and frivolous things. I have a sense of something in me while I thus speak, which I must con-*

fess, is of so retruse a nature, that I want a name for it, unless I should adventure to term it Divine Sagacity, which is the first Rise of successful Reason." Thus, "the Beginning of Reason is not Reason, but something which is better," for the divine sagacity "is a more inward, compendious, and comprehensive Presensation of Truth, ever antecedaneous to . . . Reason."<sup>4</sup> In his treatise on the law of nature, which appeared in 1672, Cumberland, though primarily concerned to develop a theory of law as constituted by divine will and apprehended by reason, implies that the law is as such congruent to the affections, in the "due exercise" of which virtue consists. In a series of sermons on charity preached in 1675, Isaac Barrow, like More, defines moral perception as precedent to the rational processes, operating intuitively, "without any discursive reflection": acts of virtue "do at first sight, without aid of any discursive reflection, obtain approbation and applause from men; being acceptable and amiable to their mind, as beauty to their sight, harmony to their hearing, fragrancy to their smell, and sweetness to their taste."<sup>5</sup> Samuel Parker, despite his reduction of moral law to the will of God, appears to consider that the law is operative not only in the reason but also in the affections. Of Hobbes' view "that Mankind is inclined and determined by Nature to acts of mutuall hatred and hostility," Parker observes: "if we take in the whole account of our Nature, and onely suppose our selves intelligent and rationall Beings, nothing will appear more extravagant than to affirm that nature inclines or rather (as he determines it) forces us into a posture of War and mutuall Cruelty." This means no more than that reason is capable of governing the passions. But Parker goes farther. If, he argues, Hobbes means that "those passions and inclinations that are common to him [man] with other Creatures" are naturally hostile, "even that is manifestly false . . . in that every thing in humane nature has a vehement tendency to acts of love and goodwill."<sup>6</sup> Tillotson relates moral valuation more explicitly to "a kind of natural instinct," so called "because it does not seem to proceed so much from the exercise of our reason, as from a natural propension and inclination, like those instincts which are in brute



creatures of natural affection.”<sup>7</sup> In a treatise on the virtues published in 1691, John Hartcliffe, a divine and headmaster of the Merchant Taylors’ School, draws the same distinction between rational judgment and the “natural sense of *good* and *evil*,” which does not “proceed from Reason, but from Nature . . . antecedent to all Discourse.”<sup>8</sup> “There is no need of any subtle reasoning to prove the fitness or unfitness” of an act, “because it is prevented by the very Instinct of Nature.”<sup>9</sup> A similar shift from reason to instinct is illustrated in Burnet’s three pamphlets on Locke’s *Essay*. In the *Third Remarks*, published in 1699, Burnet reinterprets the principles of rational law stated in the two earlier *Remarks*, suggesting that moral judgment precedes the exercise of reason and derives from “a Natural Sagacity to distinguish Moral Good and Evil, or a different perception and sense of them, with a different affection of the Mind arising from it; and this so immediate as to prevent and anticipate all External Laws, and all *Ratiocination*.”<sup>10</sup> Natural conscience is “a Principle of distinguishing one thing from another in Moral Cases, without *Ratiocination*.”<sup>11</sup>

Shaftesbury’s *Characteristicks*, which appeared in 1711, is a compendium of this scheme of ideas.<sup>12</sup> Shaftesbury’s system begins, as does Clarke’s, with a critique of the doctrine of divine will. “If . . . there be a Belief or Conception of a DEITY, who is consider’d only as *powerful* over his Creature, and inforcing Obedience to his *absolute Will* by particular Rewards and Punishments; and if on this account, thro’ hope merely of *Reward*, or fear of *Punishment*, the Creature be incited to do the Good he hates, or restrain’d from doing the Ill to which he is not otherwise in the least degree averse; there is in this Case . . . no Virtue or Goodness whatsoever.”<sup>13</sup> Like Clarke, Shaftesbury defines the standard of moral value in terms of the constitution of human nature, the “Sense of Right and Wrong” being, he contends, “as natural to us as *natural Affection* itself” and “a first Principle in our Constitution and Make”; being so, “there is no speculative Opinion, Persuasion or Belief, which is capable *immediately* or *directly* to exclude or destroy it. That which is of original and pure Nature, nothing beside contrary Habit and Custom . . . is

able to displace.”<sup>14</sup> But unlike Clarke, Shaftesbury reduces the faculty of moral judgment to the common denominator not of reason but of the passions.

This theory of moral valuation involves, for Shaftesbury as for Hutcheson and Hume, a redefinition of natural affection. A moral agent who “can consider the good of the whole, and consider himself as related to the whole, must withal consider himself as under an obligation to the interest and good of the whole . . . and this is the ground of a new and superior affection.”<sup>15</sup> “Every affection,” therefore, “is natural which affects the preservation and good of that which nature has assigned to it. Thus the natural affection of a part or member is to work for the preservation of the body.”<sup>16</sup> The affections afford a sufficient standard of moral value because they relate not only to private but also to the public interest; the moral unit to which the affections are directed is social, not individual. Virtue is not a rational judgment and an act of will but a sensory perception and a satisfaction of passion.<sup>17</sup> Shaftesbury acknowledges that, as such, moral activity is interested, but argues that the “Question wou’d not be, ‘Who *lov’d* himself, or Who *not*,’ but ‘Who *lov’d* and serv’d himself the *rightest*, and after the truest manner.’ ”<sup>18</sup> Virtue, or the right and true manner of self-love, is conformity, not to divine or rational law, but to the law of the affections. Moral law is not a statement of precepts but a description of inherent order.<sup>19</sup>

This is the argument of *The Moralists*, a dialogue first published in 1709 and reprinted in the *Characteristicks* two years later. In the first part, Palemon maintains that natural evil is a result of sin, a product of the Fall and the curse.<sup>20</sup> Philocles contends, against this view, that natural evil is not a consequence of sin but a condition of law and is not, as such, inconsistent with the order of creation.<sup>21</sup> The second part contains an extended dialogue between Philocles, who distinguishes between material and moral evil,<sup>22</sup> and Theocles, who argues that the principles of order are moral as well as natural: in “the Fabrick of *the Mind*, the Constitution of the Soul, the Connexion and Frame of all its Passions, and Affections,” there is “Beauty and Decorum . . . as

well as elsewhere in Nature." This principle, that "the Order of the Moral World" equals "that of the Natural,"<sup>23</sup> is the logical conclusion of the argument, worked out in the *Inquiry concerning Virtue*, that "Men without any Trouble or Violence upon themselves may," by the definition of their nature, "be naturally Virtuous."

Despite the accumulation of ideas similar to those stated in the *Inquiry concerning Virtue*, their influence in the two decades after the appearance of the *Inquiry* was not decisive.<sup>24</sup> The first important critical analysis of the rationalist position, Francis Hutcheson's *Inquiry into the Original of our Ideas of Beauty and Virtue*, was published in 1725. This work, like the *Essay on the Nature and Conduct of the Passions and Affections*, published three years later, had two related objectives: to show that the identification of moral law with reason is inherently tautologous, and to formulate a more precise definition of moral law in terms of the affections.<sup>25</sup>

Hutcheson's critique of the theory of rational law begins with a consideration of the relation between reason and action. Hutcheson argues that reason cannot motivate an act and can therefore have no moral relevance to action. The only motive to action is "*Affection or Passion.*" Reason is related not to ends but to means. Hutcheson rejects the common belief that "'We have two Principles of Action, *Reason*, and *Affection or Passion*: the former in common with Angels, the latter with Brutes.'" <sup>26</sup> "As if indeed," he comments, "*Reason . . . could excite to Action . . . or as if Ends could be intended without Desire or Affection.*" <sup>27</sup> Applying this principle more specifically to Clarke's definition of moral law as derived from absolute fitness or relation, Hutcheson argues that reason cannot apprehend the intrinsic fitness of an act, but can only determine the fitness of a given means to a given end. "The fitness of means or subordinate ends, does not prove them to be good, unless the ultimate end be good." <sup>28</sup> In the same sense, the criterion of truth proposed by Wollaston is, for Hutcheson, a judgment not of ends but of means. "*Conformity to moral truth*, or

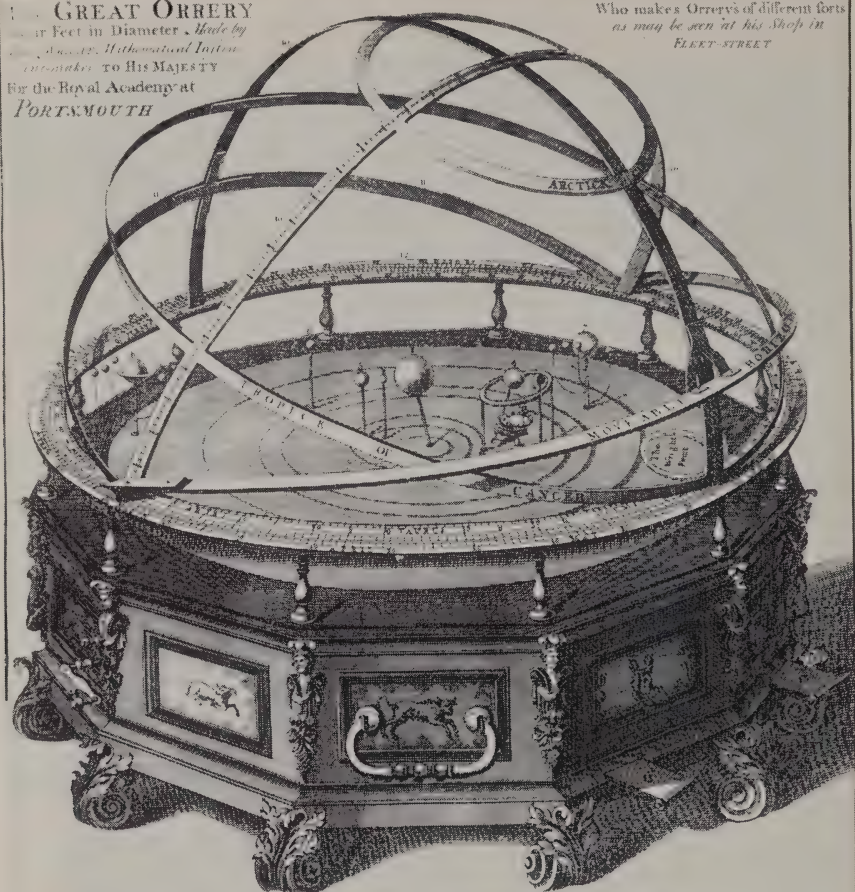


*A map of the moon published by Johann Hevelius in his Selenographia in 1647. One of the best of early lunar maps, it shows in minute detail the mountains discovered by Galileo with the telescope less than forty years before. Terrestrial place-names are used to identify prominent physical features visible on the surface of the moon.*



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 Four Feet in Diameter, Made by  
 Thomas Wright, Mathematical Instrument-  
 maker, TO HIS MAJESTY  
 For the Royal Academy at  
**PORTSMOUTH**

Who makes Orreries of different sorts  
 as may be seen at his Shop in  
 FLEET-STREET



Where to Sold a Large Print of the Orrery with the Explanation on a Sheet of Paper

A contemporary engraving of an orrery built by Thomas Wright in 1731. Orreries were designed to illustrate gravitational motion. The earliest models showed only the sun, earth, and moon. Later the inferior planets were included. The finest instruments showed the whole known solar system with its six planets and ten moons, each revolving about the sun in its proper period.



true propositions about morals, equally belongs to virtue and vice; as the mind discerns truth about both.”<sup>29</sup> Reason “judges about the means or the subordinate ends: but about the ultimate ends there is no reasoning. We prosecute them by some immediate disposition or determination of soul, which in the order of action is always prior to all reasoning.”<sup>30</sup> The function of reason, which determines means, is relative to that of the affections, which determine ends. “He acts *reasonably*, who considers the various Actions in his Power, and forms *true Opinions* of their *Tendencies*; and then chuses to do that which will obtain the highest Degree of *that*, to which the *Instincts* of his Nature incline him, with the smallest Degree of those things from which the *Affections* in his Nature make him averse.”<sup>31</sup> Reason is “*that Sagacity we have in prosecuting any End*” proposed by the affections.<sup>32</sup>

Moral value Hutcheson defines, not in terms of reason, but in terms of the passions. “The Word MORAL GOODNESS, denotes our Idea of *some Quality apprehended in Actions, which procures Approbation, and Love toward the Actor, from those who receive no Advantage by the Action.*”<sup>33</sup> Approbation of such a quality, Hutcheson maintains, can be explained only on the supposition that the affections are so constituted as to require the good of others for their satisfaction: “as the AUTHOR of *Nature* has determin’d us to receive, by our *external Senses*, pleasant or disagreeable Ideas of Objects, according as they are useful or hurtful to our Bodies . . . so he has given us a MORAL SENSE, to direct our Actions, and to give us still *nobler Pleasures*; so that while we are only intending the *Good* of others, we undesignedly promote our own greatest *private Good.*”<sup>34</sup> This “*Determination of our Nature to study the Good of others*” is an “*Instinct, antecedent to all Reason.*”<sup>35</sup> So constituted, the “publick Affections,” “previously to any Change made by Custom or Habit, which we see casts the Ballance to either side,” are a “sufficient *Counterballance* to the *Medium* of the Selfish.”<sup>36</sup> Thus, the “natural State” is one of “*Good-will, Humanity, Compassion, mutual Aid, propagating and supporting Offspring, Love of a Community or Country, Devotion, or Love and Gratitude to some governing Mind.*”<sup>37</sup>

The moral faculty is a sense naturally directed towards the satisfaction of the public affections, just as the external senses are directed towards the satisfaction of the private affections, but providing "still *nobler Pleasures*." This definition of the moral faculty is open, like Shaftesbury's, to the objection that virtue, or the satisfaction of the moral sense, is inherently interested. In answer to this objection, Hutcheson argues that the pleasure of moral satisfaction is an effect and not a cause, for desire is by definition directed not to its own satisfaction but to an object.<sup>38</sup> Satisfaction is therefore not the cause but the effect of the realization of desire for a given object, in this case the good of others. The fact of moral satisfaction "plainly supposes a *Sense of Virtue* antecedent to Ideas of *Advantage*, upon which this Advantage is founded."<sup>39</sup>

In his *Inquiry into Beauty and Virtue* and *Essay on the Passions*, Hutcheson formulated a theory of moral law which was radically different from that worked out by Samuel Clarke in his *Discourse Concerning Natural Religion*. For Clarke, moral value is derived from reason and the nature of things; for Hutcheson, it is derived from the passions and the objects of their desire. Moral activity is the satisfaction of the affections, and the constitution of the affections is the standard of moral action. The office of reason is not absolute but relative; reason is concerned not with ends but with "the means or subordinate ends." Moral law, which determines the election of ends, is determined not by reason but by the passions.

In his *Treatise of Human Nature* and other essays, Hume restated the principles developed by Hutcheson in an extended re-examination of the relationship between reason and passion as Clarke had presumed it to be. Hume begins, as does Hutcheson, with an analysis of "the influencing motives of the will."<sup>40</sup> Of the traditional conception of the relation between reason and action Hume observes: "Nothing is more usual in philosophy, and even in common life, than to talk of the combat of passion and reason, to give the preference to reason, and assert that men are only so

## THE SATISFACTION OF THE AFFECTIONS

far virtuous as they conform themselves to its dictates." Hume proposes, on the contrary, that "reason alone can never be a motive to any action" and that it "can never oppose passion in the direction of the will."<sup>41</sup> Reason cannot propose ends or make moral elections; it is concerned only with the means appropriate to the ends which are proposed to it by the passions. "Where a passion is neither founded on false suppositions, nor chuses means insufficient for the end, the understanding can neither justify nor condemn it. 'Tis not contrary to reason to prefer the destruction of the whole world to the scratching of my finger."<sup>42</sup> That reason which is "so much recommended in moral discourses" is in fact "a general and a calm passion, which takes a comprehensive and a distant view of its object, and actuates the will, without exciting any sensible emotion."<sup>43</sup>

This theory of reason raises, for Hume as for Hutcheson, the problem of valuation: by what faculty do we compare the moral value of ends? How are those elections which are termed good distinguished from those which are termed evil? Hume proposes, as did Hutcheson, that virtue is that quality in an action which procures approbation. Since the approbation of virtue is general and is not confined to those who themselves receive advantage from the action, the disposition of the affections must be such as to regard the public as well as the private good.<sup>44</sup> Moral approbation is the experience of satisfaction in activity that conduces to the happiness of others.<sup>45</sup> Similarly, moral obligation is the obligation to perform such actions as satisfy the affections. The moral content of an act is, therefore, determined by the relation between the satisfaction of the affections and its performance. The office of reason is to define this relationship in given cases.

Moral law so conceived is not a statement of obligation, to either the divine will or the reason, since there is no obligation but that of the agent to himself. Nor does it derive from an extrinsic standard of moral value, since there is no standard of value outside the agent. Moral value derives not from reason or the will of God but from the affections. Virtue is the performance of those acts which satisfy the affections constituting the moral

sense. The obligation to perform such acts is provided by the satisfaction consequent on their performance.

In Hume the systematic analysis of moral standards reaches a *terminus ad quem*.<sup>46</sup> Conceived as a revelation of the divine will, moral law is a statement of the relation between man and God and of the obligations imposed on the moral agent by this relationship. Its authority derives not from man but from God. As such, it is a statement, not (in the fallen state) of what is, but of what ought to be. Conceived as a principle of reason, moral law is defined by the relationship between the rational agent and the nature of things. Its authority derives not from the will of God but from the structure of reason itself. Man, so conceived, is a law to himself, not in that the divine will is knowable to reason, but in that reason is itself the law. This does not mean, however, that the law is simply a description of the agent, since there remains, in Clarke for example, an effective distinction within the moral agent between reason and the passions. In Hutcheson and Hume, this distinction disappears. The concept of reason as a determinant of behavior is reduced to the concept of instinct. Moral standards are derived from the affections, and moral value is measured by their satisfaction. Moral law is, in this view, simply a definition of human nature.

For Milton, law is a general statement of obligation. It has no necessary connection with things as they are. The doctrines of free will and the Fall, as Milton uses them, are, indeed, designed to account for the fact that there is no such connection. Fallen man is, for Milton, in a state of moral disorder because what is differs from what, according to the law, ought to be. For Hume, law is a description of the nature of man. As such, it is equated with things as they are. What should be is, in the nature of man, the same as what is, because there is no standard of valuation apart from the nature of man as it is. The principle of moral order is a logical inference from such a view. It is in this sense that the theory of moral law developed by Hutcheson and Hume justified the belief that "*order is kept in man, as well as in the other parts of nature.*"





## *Conclusions: Whatever Is, Is Right*

WHAT is involved in this pattern of controversy is a definition of moral and material evil. Is evil the consequence of sin or is it a condition of existence? For Donne, both moral and material evil are the result of original sin. The moral estate is subject to evil in the Fall, the natural estate in the curse. "Now," therefore, "in every sense, the world may well be said to bee subject to the re-proofe of God. . . . He rebuked the earth bitterly in that *Maledicta terra*, for *Adams* punishment . . . [and] put into it a reproofe, a rebuke, lest it should seem eternall, which is, a sensible decay and age in the whole frame of the world." The Fall divides the world as it ought to be from the world as it is. The unfallen state was conceived by God; the fallen state is corrupt in Adam. God created man, in the beginning, "in his *own* image, in the image of God created he him . . . and, behold, *it was* very good." After the Fall He said, "dust thou *art*, and unto dust shalt thou return." <sup>1</sup> Likewise, of the earth "God said, Let the earth bring forth grass, the herb yielding seed, *and* the fruit tree yielding fruit after his kind . . . and God saw that *it was* good." And after the Fall He said, "cursed *is* the ground for thy sake . . . Thorns also and thistles shall it bring forth to thee." <sup>2</sup> The disorder of man and the world is a result of the difference between the law, or what ought to be, and the act, or what is.

'Tis all in peeces, all cohaerence gone;  
All just supply, and all Relation. . . .



By the "untimely death of Mistris Elizabeth Drury" Donne sets forth the corruption of sin not only in man but also in "this whole World."

For Pope, both moral and material evil are conditions of existence. Partial evil, in other words, is necessary to the existence of general good. Evil does not, therefore, derive from the original sin of Adam but is inherent in the constitution of creation. This is true not only of the material but also of the moral estate. "God is the author . . . of all the natural evils in the universe; that is, of the fewest possible in the nature of things; and why may he not be the author of all moral evil in the same manner, and on the same principle? If natural evil owes its existence to necessity, why may not moral?" The moral and material order of creation proceeds from the identity of what ought to be with what is. Law is not imperative but descriptive.

The differences between the *Anatomie* and the *Essay on Man* are, in the last analysis, differences between two conceptions of law in relation to the agent. Donne supposes a radical distinction between the acts required by the law and the acts performed by the agent. This distinction is formulated, as applied to man, in the doctrine of the Fall, and, as applied to the world, in the doctrine of the curse. For Pope, the distinction has no meaning. The law does not define norms; it describes effects. The development of this conception of law in the century before 1733 is a complex process involving a number of the primary assumptions of the period and several centers of argument. Four of these have been examined in the present study. The replies to Burnet's *Sacred Theory* rationalized the belief that the earth is not the natural estate of sin, a product of the curse and the Flood, but the work of divine providence, a product of the creation. Newton's theory of gravity extended this belief by showing that planetary motion requires both the original and the present agency of God. These conclusions, by emphasizing the identity of the original and present states of creation, made it possible to suppose that the curse did not alter the principles of nature, and that natural law is a description of the physical world as it is.

## WHATEVER IS, IS RIGHT

In the theories of moral valuation formulated by Clarke and Hutcheson these principles are applied to moral phenomena. The idea that moral law derives from reason at first required only the admission that the law is knowable to reason; this, however, led to a further admission, that is, that reason itself constitutes the law it apprehends. The agent is, in other words, himself the law. In this view there remains a distinction, within the agent, between the reason and the passions, and, in effect, the normative function of law is assumed to operate between the faculties. As the concept of reason is logically reduced to a concept of passion, however, the distinction disappears. Moral law, in this view, is deprived of its normative function, since there is no standard of valuation outside the agent and no principle of inward hierarchy; no obligation except that of the agent to himself and no sanction but the satisfaction of the affections. Moral as well as natural law is a description of things as they are.

The poetic center of Donne's *First Anniversary* is the belief that both man and the world are corrupted by original sin, a belief inherited from medieval Christian tradition and terminating, as a prevailing idea, in the seventeenth century. The poetic center of Pope's *Essay on Man* is the belief, developed during the seventeenth century and persisting into the middle of the nineteenth, that

The gen'ral ORDER, since the whole began,  
Is kept in Nature, and is kept in Man.

The idea of disorder illustrated in Donne contained the controlling principles of Christian belief, the sin of Adam and the redemption of Adam in Christ. The idea of order illustrated in Pope contained the controlling principles of the pattern of belief in which it is supposed that man is redeemed not in Christ but in Adam.



*APPENDIXES, NOTES, AND INDEX*







## *Appendix I. The Burnet Controversy: A Short-Title Checklist*

THE following is a chronological checklist of the Burnet controversy in England from 1681 to 1700. Only those items which form part of the controversy itself (exclusive of allusions and incidental references) have been included. The titles and dates are those of the first edition in each case; the dates of later editions are given under the main entry.

- 1681 [Thomas Burnet], *Telluris Theoria Sacra. . . . Libri duo priores de Diluvio & Paradiso* (London, 1681). Second edition, 1689; third edition, 1702.
- 1681 Sir Isaac Newton, two letters to Burnet, December 24, 1680 and January, 1681. The first letter does not appear to be extant. A copy of the second is in the Portsmouth Collection in the Cambridge University Library; it was printed in Sir David Brewster, *Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton* (2 vols., Edinburgh, 1855), II 447-54.
- 1684 [Burnet], *The Theory of the Earth. . . . The Two First Books Concerning The Deluge, and Concerning Paradise* (London, 1684). Second edition, 1691; third edition, 1697; fourth edition, 1719; fifth edition, 1722; sixth edition, 1726; seventh edition, 1759.
- 1685 Herbert [Croft], Bishop of Hereford, *Some Animadversions Upon . . . the Theory of the Earth* (London, 1685).
- 1690 [Burnet], *A Review of the Theory of the Earth* (London, 1690).
- 1690 Erasmus Warren, *Geologia: or, A Discourse Concerning the Earth before the Deluge* (London, 1690).

- 1690 [Burnet], *An Answer to the late Exceptions made by Mr Erasmus Warren against the Theory of the Earth* (London, 1690).
- 1691 Edmund Halley, "The Circulation of Watry Vapours," in *Philosophical Transactions Abridged*, Vol. II, ed. John Lowthorp (London, 1716), 126-29.
- 1691 Warren, *A Defence of the Discourse Concerning the Earth Before the Flood* (London, 1691).
- 1691 [Burnet], *A Short Consideration of Mr Erasmus Warren's Defence of his Exceptions Against the Theory of the Earth* (London, 1691).
- 1691 Matthew Mackaile, *Terrae Prodrromus Theoricus . . . by way of Animadversions, upon Mr. Thomas Burnet's Theory, of His Imaginary Earth* (Aberdeen, 1691).
- 1692 Warren, *Some Reflections upon the Short Consideration Of the Defence of the Exceptions* (London, 1692).
- 1692 John Ray, *Miscellaneous Discourses Concerning the Dissolution and Changes of the Earth* (London, 1692). Second edition, as *Three Physico-Theological Discourses*, 1693.
- 1693 [John Beaumont], *Considerations On a Book, Entituled The Theory of the Earth* (London, 1693).
- 1694 Beaumont, *A Postscript to a Book . . . Entituled Considerations on Dr. Burnet's Theory of the Earth* (London, 1694).
- 1694 Thomas Robinson, *The Anatomy of the Earth* (London, 1694).
- 1694 Halley, "Some Considerations about the Cause of the Universal Deluge," in *Philosophical Transactions Abridged*, Vol. VI, ed. John Eames and John Martyn (London, 1734), Pt. II, 1-5.
- 1695 John Woodward, *An Essay towards a Natural History of the Earth* (London, 1695). Second edition, 1702; third edition, 1723.
- 1695 L. P., *Two Essays Sent in a Letter from Oxford* (London, 1695).
- 1696 [Archibald Lovell], *A Summary of Material Heads Which may be Enlarged and Improved into a Compleat Answer to Dr. Burnet's Theory of the Earth* (London, 1696).
- 1696 William Whiston, *A New Theory of the Earth* (London, 1696). Second edition, 1708; third edition, 1722; fourth edition, 1725; sixth edition, 1755.
- 1696 Robinson, *New Observations on the Natural History of this World of Matter* (London, 1696).

# APPENDIX I

- 1697 J[ohn] A[rbutnot], *An Examination of Dr. Woodward's Account of the Deluge* (London, 1697).
- 1697 John Edwards, *Brief Remarks upon Mr. Whiston's New Theory of the Earth* (London, 1697).
- 1697 John Harris, *Remarks On some Late Papers [by L. P.], Relating to the Universal Deluge* (London, 1697).
- 1697 Robert St. Clair, *The Abyssinian Philosophy Confuted: or, Telluris Theoria Neither Sacred, nor agreeable to Reason* (London, 1697).
- 1698 John Keill, *An Examination of Dr. Burnet's Theory of the Earth. Together with Some Remarks on Mr. Whiston's New Theory* (Oxford, 1698). Second edition, 1734.
- 1698 [Thomas Beverley], *Reflections upon the Theory of the Earth, Occasion'd by a Late Examination of it* (London, 1699).
- 1698 [Whiston], *A Vindication of the New Theory of the Earth from the Exceptions of Mr. Keill and Others* (London, 1698).
- [1698] Tancred Robinson, *A Letter sent to Mr. William Wotton . . . concerning Some Late Remarks, &c. Written by John Harris* (n.pl., n.d.).
- [1698] J[ohn] H[arris], *A Letter to Dr. Tancred Robinson, in Answer to some Passages in His to Mr. Wotton, relating to Mr. Harris's Remarks on some Late Papers* (n.pl., n.d.).
- 1699 Keill, *An Examination of the Reflections on The Theory of the Earth. Together with A Defence of the Remarks on Mr. Whiston's New Theory* (Oxford, 1699).
- 1700 S[amuel] P[arker], "The Foundations of Dr. Burnet's Theory of the Earth, Consider'd," in *Six Philosophical Essays Upon Several Subjects* (London, 1700).
- 1700 Whiston, *A Second Defence of the New Theory of the Earth from the Exceptions of Mr. John Keill* (London, 1700).



## *Appendix II. Moral Gravitation: A Metaphor of Moral Order*

THE development of an indicative conception of moral law during the half-century after 1687 is illustrated in a most interesting way by the use, during that period, of the metaphor of moral gravitation. This metaphor was at once contained in and justified by the growing belief that the principles of descriptive law could legitimately be applied not only to physical but also to moral phenomena.

Gravitation, in post-Newtonian theory, was a metaphor not only of natural order but also of the immediate presence of God in the natural estate. Translated into moral terms, it became a metaphor of moral order and of the continuing and present activity of God in the moral estate. The fullest statement of this analogy is provided in John Norris' treatise on *The Theory and Regulation of Love*, published in 1688, a year after the appearance of the *Principia*. As "this Affection call'd *Gravity* in Bodies," Norris observes, "is nothing else but that *first Impression* or Alteration made upon them by the various Actings of those Effluvi-ums or Streams of Particles which issue out from the Womb of that great Magnet, the *Earth* . . . so in the like manner this radical *Complacency* and Connaturality of the Soul towards Good (which I call her *Moral Gravity*) is nothing else but that first Alteration or Impression which is made upon her by the streaming Influences of the Great and Supreme Magnet, *God*, continually acting upon her, and attracting her by his active and powerful

Charms.”<sup>1</sup> The motion of the soul towards good is as necessary as the motion of the stone towards the ground: “by Vertue of this Moral Gravity the Soul actually puts forth and exerts her self towards the great *Magnet*, Good in general or God, and that with as much Necessity as a Stone falls downwards.”<sup>2</sup> Moral law, it would appear, is not normative but descriptive.

In a sermon preached in 1717, Richard Bentley uses this figure to illustrate the analogy between love and gravitation. In the natural order, “every least particle of body . . . has its operation and passion perpetual and reciprocal with all the rest of the world besides it; such an alliance being established between all the matter of the universe, that the whole is linked together by mutual attraction or gravitation”;<sup>3</sup> “let us now proceed from the natural world to the moral,” in which gravity is a figure of the “appetites and inclinations,” the “natural wants and exigencies” which the “Creator has implanted in mankind” and which “lead him spontaneously to the love of society and friendship, to the desire of government and community.”<sup>4</sup> The law of gravity is a figure of both natural and moral order.

Thomas Rundle, preaching in 1734, develops a similar analogy, between the “constitution of the intellectual and material world,” representing self and social love in the moral system by the centrifugal and gravitational forces in the natural system.<sup>5</sup> George Turnbull uses the metaphor in the same way, as an emblem of the descriptive law of moral order: “the social or uniting principle in us is fitted by nature to operate in those proportions, which are most conducive to the common good of our kind. I cannot better explain this than by comparing the uniting, benevolent principle in our nature to attraction in the material system. It is indeed moral or social gravitation, and operates like the other proportionally, as best suits to the upholding of the whole fabric in per-

<sup>1</sup> John Norris, *The Theory and Regulation of Love* (London, 1723), p. 29.

<sup>2</sup> *Ibid.*, p. 30. Norris reconciles this theory of moral necessity with orthodox ethical doctrine by acknowledging that the choice of the objects of love requires regulation by the will.

<sup>3</sup> Richard Bentley, *A Sermon Preached . . . On February the third, 1716-7*, in *The Works of Richard Bentley*, ed. the Rev. Alexander Dyce (3 vols., London, 1836-38), III 266.

<sup>4</sup> *Ibid.*, p. 267.

<sup>5</sup> Thomas Rundle, *A Sermon Preach'd . . . On Sunday February 17, 1733/4. To recommend . . . Charity* (London, 1734), p. 6.



fect order.”<sup>6</sup> Gravity is a figure not only of the falling of a stone but also of the motion of the soul towards good. As such, it acts as a metaphor of the analogous constitution of the material and moral systems and of natural and moral law.

<sup>6</sup> George Turnbull, *The Principles of Moral Philosophy* (London, 1740), p. 190. Cf. also: *The Guardian*, No. 126, Wednesday, August 5, 1713; John Reynolds, *A View of Death* (1719), in *Memoirs of the Life Of . . . Mr. John Reynolds* (London, 1735), p. 39n; David Mallet, *The Excursion* (1728), in *The Works of David Mallet* (3 vols., London, 1759), I 101; John Bancks, “To Mr. Mitchell: An Epistle,” ll. 91–100, in *Miscellaneous Works, in Verse and Prose* (2 vols., London, 1738), II 61.



## Notes

### CHAPTER I. THE SACRED THEORY OF THE EARTH

<sup>1</sup> John Donne, *An Anatomie of the World*, in *The Poems of John Donne*, ed. Herbert J. C. Grierson (2 vols., Oxford, 1912), I 237, ll. 183-84.

<sup>2</sup> *Of the Progresse of the Soul*, *ibid.*, p. 253, l. 82.

<sup>3</sup> *An Anatomie*, *ibid.*, p. 237, l. 192; p. 238, ll. 237-38.

<sup>4</sup> *Ibid.*, p. 237, ll. 206-14.

<sup>5</sup> Alexander Pope, *An Essay on Man*, ed. Maynard Mack (London, 1950), 1.281-82, 289-94.

<sup>6</sup> *Ibid.*, 1.171-72.

<sup>7</sup> George Turnbull, *The Principles of Moral Philosophy* (London, 1740), p. iv.

<sup>8</sup> Cf. Arthur O. Lovejoy, "Optimism and Romanticism," *PMLA*, XLII (1927), 921-45.

<sup>9</sup> Medieval commentary on the Fall and the curse is, of course, less simple than it is here made to appear. In the standard glosses, the curse was interpreted variously as an alteration in substance and as a change in relation. Discussion of these ambiguities has been omitted here since they are treated at length in the unpublished manuscript of the Messenger Lectures delivered by Marjorie Nicolson at Cornell University in 1948.

<sup>10</sup> *Genesis* 3. 17-19 (version of 1611).

<sup>11</sup> Cf. Sir David Lyndsay, *Ane Dialog Betwix Experience and Ane Courteour* (1554), in *The Poetical Works of Sir David Lyndsay*, ed. George Chalmers (3 vols., London, 1806), II 379-80, 388; Pedro Mexia, *The Foreste or Collection of Histories*, tr. Thomas Fortescue (London, 1571), fols. 1-2<sup>v</sup>; George Gascoigne, *The Droomme of Doomes day* (1576), in *The Complete Works of George Gascoigne*, ed. John W. Cunliffe (2 vols., Cambridge, 1907-10), II 222, 234; Philip of Mornay, *A Woorke concerning the trewnesse of the Christian Religion*, tr. Sir Philip Sidney and Arthur Golding (London, 1587), pp. 287, 292-94; Antonio de Torquemada, *The Spanish Mandevile of Miracles. Or The Garden of curious Flowers*, tr. Ferdinando Walker (London, 1600), fols. 23<sup>v</sup>, 52; David Person, *Varieties; or, A Surveigh of rare and excellent matters* (London, 1635), Bk. v, p. 87; James Ussher, *A Body of Divinitie* (London, 1645), pp. 126ff., 136ff.; Thomas White, *A Theologicall Appendix, Of The Beginning Of the World*, in

*Peripatetico Institutions* (London, 1656), pp. 371-72. For a full discussion, see Victor Harris, *All Coherence Gone* (Chicago, 1949).

<sup>12</sup> John Milton, *Paradise Lost*, iv.711. The text used throughout is that of the Columbia Edition. Musical imagery is employed in a similar way in *At a Solemn Musick* and the *Nativity Ode* to suggest the harmony of man and nature, in the unfallen state, with the divine will; this harmony is destroyed by the Fall and restored in the Incarnation of Christ. Cf. Arthur Barker, "The Pattern of Milton's *Nativity Ode*," *University of Toronto Quarterly*, x (1941), 167-81.

<sup>13</sup> *Paradise Lost*, ix.1127-31.

<sup>14</sup> *Ibid.*, x.192-96, 201-4.

<sup>15</sup> *Ibid.*, x.651-56, 706-7. Cf. also ix.781-84, 997-1004.

<sup>16</sup> *Ibid.*, iv.340ff., 347, x.710.

<sup>17</sup> *Ibid.*, xi.462ff., 472ff., 538ff., 638ff., 728ff. In an academic exercise entitled *Naturam non Pati Senium*, written for the disputation held at Cambridge in 1628 on the subject of George Hakewill's *Apologie of the Power and Providence of God* (1627), Milton supports Hakewill against Goodman (see *post*, pp. 15-16, 18, 23) in arguing that the earth has not declined from its original estate. There seems little doubt, however, that this was not Milton's considered view in his maturity.

<sup>18</sup> The first two books are concerned with Paradise, the Fall, and the Flood; the third and fourth books, published in Latin in 1689 and in English in 1690, are concerned with the Conflagration and the Apocalypse.

<sup>19</sup> This idea was not, of course, new. Medieval theories of mountains and their significance had developed in conjunction with theories of the curse. The belief that the curse involved an alteration in the constitution of the earth was commonly associated with the belief that mountains are a product of the Flood.

<sup>20</sup> See *post*, Ch. 3 and App. 1.

<sup>21</sup> Burnet supposed, incorrectly, that axial elongation would have resulted from the earth's rotation. The plane of the ecliptic is that plane swept out by the radius of the earth's great circle drawn to the sun. Burnet's supposition that the climate of spring would result from an equinox is only half true. At the equator an equinoctial sun would always be directly overhead; at the poles, half of its disc would always be below the horizon. Consequently, the tropical and polar extremes of temperature would be much greater than at present. Furthermore, the temperate zones between the poles and the equator would be narrower than those of the present globe.

<sup>22</sup> [Thomas Burnet], *The Theory of the Earth. . . . The Two First Books Concerning The Deluge, and Concerning Paradise* (London, 1684), pp. 67-68.

<sup>23</sup> *Ibid.*, pp. 144-45. Burnet's observation that there is "nothing in Nature more shapeless and ill-figur'd than an old Rock or a Mountain" is (and has been since 1685) commonly contrasted with his well-known passage of appreciation: "There is something august and stately in the Air of these things that inspires the mind with great thoughts and passions; We do naturally upon such occasions think of God and his greatness, and whatsoever hath but the shadow and appearance of INFINITE, as all things have that are too big for our comprehension, they fill and over-bear the mind with their Excess, and cast it into a pleasing kind of stupor and admiration" (*ibid.*, p. 140). H. V. S. Ogden, in "Thomas Burnet's *Telluris Theoria Sacra* and

Mountain Scenery," *ELH*, xiv (1947), 139-50, regards Burnet, largely on the strength of this passage, as a principal source of the doctrine of the sublime in the eighteenth century. To suggest, however, that Burnet is involved in a major inconsistency of argument is to abuse the evidence. The passage quoted immediately above continues: "And yet these Mountains we are speaking of, to confess the truth, are nothing but great ruines," like Roman temples and amphitheatres (*ibid.*, p. 140). Cf. also Burnet's reply to Warren: "A man may be pleas'd in looking upon a Monster, will you conclude therefore that he takes it for a Beauty?" (*An Answer to the late Exceptions made by Mr. Erasmus Warren* (London, 1690), p. 22). See *post*, p. 28. The juxtaposition of doctrinal disapproval with aesthetic admiration was common in contemporary references to mountains.

<sup>24</sup> *The Theory of the Earth*, pp. 148, 140.

## CHAPTER 2. THE WHOLE FRAME OF THE WORLD

<sup>1</sup> Justus Lipsius, *Two Bookes of Constance* (1583), ed. Rudolf Kirk and Clayton Morris Hall (New Brunswick, 1939), p. 108. Lipsius' treatise was first translated into English in 1594 by Sir John Stradling.

<sup>2</sup> Joshua Sylvester, "A Funerall Elegie," in *The Complete Works of Joshua Sylvester*, ed. the Rev. Alexander B. Grosart (2 vols., Edinburgh, 1880), II 291.

<sup>3</sup> 2 *Peter* 3.5-7. Cf. also *Psalms* 102.25-27.

<sup>4</sup> *De civitate Dei*, in *Patrologia Latina*, ed. J.-P. Migne (221 vols., Paris, 1844- ), xli 684.

<sup>5</sup> *Ibid.*, col. 698.

<sup>6</sup> An indication of its familiarity in the middle of the seventeenth century is provided by Thomas Stanley's *History of Philosophy*, a popular handbook of the classical philosophies first published in 1655 and widely read in the second half of the seventeenth century and thereafter. The heavens, as Stanley summarizes Aristotle, are of a "fift essence, different from the constitutions of the other four simple bodies, more divine and precedent to all the rest." "Heaven is *void of generation, and corruption*, and consequently of accretion, diminution, and alteration, for it hath no contrary." "Heaven *naturally moveth circularly*." "Heaven is *Sphaerical*, for to the first body the first figure is most proper" (Thomas Stanley, *The History of Philosophy* (London, 1687), p. 375). It is interesting to notice that as late as 1690, long after the idea had lost credit, Burnet restates the distinction between the heavens and the earth in denoting the effects of sin, and gives an extended commentary on St. Augustine's gloss on 2 *Peter* 3.6 (*A Review of the Theory of the Earth* (London, 1690), pp. 17-18).

<sup>7</sup> The imaginative significance of Kepler's laws was, of course, radically altered when they were adopted and employed by Newton in a comprehensive theory of gravity.

<sup>8</sup> Cf. Marjorie Nicolson, "The Telescope and Imagination," *Modern Philology*, xxxii (1935), 233-60, "The 'New Astronomy' and English Literary Imagination," *Studies in Philology*, xxxii (1935), 428-62, and "Milton and the Telescope," *ELH*, II (1935), 1-32.

<sup>9</sup> Sir Henry Wotton, *The Life and Letters of Sir Henry Wotton*, ed. Logan Pearsall Smith (2 vols., Oxford, 1907), I 486-87, quoted by I. A.



Shapiro, "John Donne the Astronomer: The Date of the Eighth Problem," *London Times Literary Supplement*, July 3, 1937, p. 492.

<sup>10</sup> Galileo Galilei, *Sidereus, Nuncius* (Frankfurt, 1610), p. 8. The first drawings of the moon's surface were published by Galileo in the *Sidereus, Nuncius* and showed the shadows cast by lunar mountains when the moon is in quadrature. The first lunar map was made by Langrenus and appeared in 1645. Two years later Hevelius published a complete new map in his *Selenographia*. He identified some 250 lunar formations, using the names of comparable formations on earth. His beautiful map (reproduced here facing p. 86) remained the standard in its field for almost a century. In 1651 Riccioli introduced a new nomenclature, using terrestrial names for mountains, symbolic names for "seas," and the names of famous astronomers for craters. Thus, the two brilliant craters identified by Hevelius as Aetna and Sinai became on Riccioli's map Copernicus and Tycho. The Ricciolian nomenclature is in general use today.

<sup>11</sup> Donne, *LXXX Sermons* (London, 1640), xxxvi, p. 357.

<sup>12</sup> R. F. Jones, Marjorie Nicolson, and Victor Harris have assembled rich and varied evidence. As examples, see Francis Shakelton, *A blazynng Starre or burnyng Beacon, seene the 10. of October laste* (London, 1580), sigs. Aiiii<sup>r</sup>, Diii<sup>r</sup>; Philip Stubbes, *The Anatomie of Abuses* (1583), ed. William B. D. D. Turnbull (London, 1836), pp. 225-26; John Norden, *Vicissitudo Rerum* (1600) (London, 1931), sig. A3, stanza 39; John Dove, *A Confutation of Atheisme* (London, 1605), p. 93; John Davies, *The Muses Sacrifice* (1612), in *The Complete Works of John Davies of Hereford*, ed. Grosart (2 vols., Edinburgh, 1878), II 50; Sir William Alexander, *Doomes-Day* (1614), *Hour* II, stanzas 95-96, *Hour* IV, stanza 2, in *The Poetical Works of Sir William Alexander*, ed. L. E. Kastner and H. B. Charlton (2 vols., Manchester, 1921-29), II 68, 69, 109; Robert Anton, *The Philosophers Satyrs* (London, 1616), sig. C3<sup>v</sup>; Simon Goulart, *A Learned Summarie upon the Famous Poeme of William of Salust, Lord of Bartas*, tr. T[homas] L[odge] (London, 1638), Pt. I, pp. 83, 176.

<sup>13</sup> Grierson, I 234, ll. 91, 95-96; pp. 234-35, ll. 115-19; p. 235, ll. 125-26, 145-46. Donne observes that before the Flood men could outlive the period of a comet: "if a slow-pac'd starre had stolne away From the observers marking, he might stay Two or three hundred years to see't againe" (pp. 234-35, ll. 117-19).

<sup>14</sup> *Ibid.*, p. 237, ll. 183-84.

<sup>15</sup> *Ibid.*, p. 237, ll. 191, 192.

<sup>16</sup> *Ibid.*, p. 237, ll. 199-200.

<sup>17</sup> *Ibid.*, p. 240, ll. 285-91, 300-2.

<sup>18</sup> *Ibid.*, p. 238, ll. 235-38.

<sup>19</sup> *Ibid.*, p. 239, ll. 249-50.

<sup>20</sup> *Ibid.*, p. 239, ll. 251-52, 253, 254-57.

<sup>21</sup> *Ibid.*, p. 239, ll. 269-70, 260, 261. In this passage Donne combines medieval and contemporary astronomy. The "Eccentrique parts" are the epicycles and eccentrics of the Ptolemaic system. In his description of solar motion (ll. 268-74), Donne adopts the Ptolemaic point of view. The irregularity to which he refers (ll. 268-72) is the tropical variation of the sun, caused by the obliquity of the earth's axis; the lines following (ll. 273-74) refer to the apparent declination of the sun. It is extremely difficult to determine precisely Donne's attitude to the heliocentric theory and to the



alternative hypotheses of Ptolemy, Tycho, and Copernicus. The available evidence, which is not directly relevant here, is both conflicting and complicated.

Donne's use of circle imagery is pervasive. The circle signifies, for Donne, at once the path of human life, the globe of the earth, and the sphere of the heavens. The image is syncretic, suggesting simultaneously the order and law realized in the completed circle and the sense of latent disorder in its fracture — "Nothing more endlesse, nothing sooner broke" ("A Jeat Ring Sent," *ibid.*, p. 65, l. 4). Cf. "To the Countesse of Bedford," *ibid.*, p. 220, l. 46, *LXXX Sermons*, ii, p. 13, xxvii, p. 268, *Essayes in Divinity* (London, 1651), pp. 81–82. See Milton Alan Rugoff, *Donne's Imagery: A Study in Creative Sources* (New York, 1939) and Nicolson, *The Breaking of the Circle* (Evanston, 1950).

<sup>22</sup> Grierson, i 237, ll. 205, 207, 209, 212, 213–14. In the same passage (l. 206) Donne refers to the extinction of the element of fire. Cf. *Of the Progresse of the Soul*, *ibid.*, p. 257, ll. 193–94. Drummond and Burton use the same image (see *post*, p. 17 and n. 32). The reference is to the discovery, from the absence of visible refraction of stellar light, that there is no sphere of fire between the earth and the moon. See Charles Monroe Coffin, *John Donne and the New Philosophy* (New York, 1937), pp. 166ff., for suggested sources.

<sup>23</sup> Haydn makes the plausible suggestion that in his account of the results of "new Philosophy" Donne is referring not only to the findings of contemporary astronomy but also to the skepticism of Montaigne, Agrippa, and Bruno. See Hiram Haydn, *The Counter-Renaissance* (New York, 1950), pp. 160–66.

<sup>24</sup> *Biathanatos* (London, 1644), p. 146. *Biathanatos* was written in about 1608. Donne's poems contain repeated allusions to new stars. Two or three of these indicate an orthodox attitude to the celestial and sublunary categories. In "A Feaver," for example, Donne refers to the fevers of his mistress as meteors (which were believed to be sublunary phenomena) "Whose matter in thee is soone spent, Thy beauty, 'and all parts, which are thee, Are unchangeable firmament" (Grierson, i 21, ll. 22–24). In "The Dissolution," the body, compounded of the four elements, is described as a microcosmic analogue of the four sublunary elemental spheres, the soul as an analogue of the quintessential heavens. In "To the Countesse of Huntingdon," new stars are regarded as miraculous acts of providence: "a new starre Whose motion with the firmament agrees, Is miracle; for, there no new things are" (*ibid.*, p. 201, ll. 6–8). In "A Funerall Elegie," the process of adjustment is more advanced: "Those new starres every Artist exercise, What place they should assigne to them they doubt, Argue, 'and agree not, till those starres goe out" (*ibid.*, p. 247, ll. 68–70). In "An Epithalamium" and "To the Countesse of Bedford," new stars are used as familiar units of metaphor: in the former the bride is admonished to "Bee . . . a new starre, that to us portends Ends of much wonder" (*ibid.*, p. 128, ll. 39–40); in the latter Donne observes that "We 'have added to the world Virginia, 'and sent Two new starres lately to the firmament" (*ibid.*, p. 197, ll. 67–68).

<sup>25</sup> Godfrey Goodman, *The Fall of Man, or the Corruption of Nature, Proved by the light of our naturall Reason* (London, 1616), p. 94.

<sup>26</sup> *Ibid.*, p. 16.

<sup>27</sup> *Ibid.*, p. 286.

<sup>28</sup> *Ibid.*, p. 224.

<sup>29</sup> *Ibid.*, pp. 378, 379. The scriptural reference is to *Psalm* 102.26.

<sup>30</sup> Robert Burton, *The Anatomy of Melancholy*, ed. A. R. Shilleto (3 vols., London, 1893), II 58.

<sup>31</sup> *Ibid.*, p. 65.

<sup>32</sup> *Ibid.*, p. 66. Sunspots had been observed by Galileo, Scheiner, and Fabricius, who published the first account of them in 1611. Burton also refers to the extinction of the element of fire (*ibid.*, p. 56).

<sup>33</sup> William Drummond, *Flowres of Sion* (1623), "An Hymne of the Fairest Faire," ll. 263, 264, 282, in *The Poetical Works of William Drummond of Hawthornden*, ed. Kastner (2 vols., Manchester, 1913), II 45.

<sup>34</sup> *Flowres of Sion*, "The Shadow of the Judgement," ll. 307-10, *ibid.*, p. 59.

<sup>35</sup> *A Cypresse Grove* (1623), ll. 354, 357, 351-52, *ibid.*, p. 78; ll. 208-10, *ibid.*, p. 73; ll. 347-50, *ibid.*, p. 78.

<sup>36</sup> Nathaniel Carpenter, *Geography Delineated Forth* (Oxford, 1625), Bk. II, p. 8.

<sup>37</sup> *Ibid.*, Bk. I, pp. 81-82.

<sup>38</sup> John Swan, *Speculum Mundi. Or A Glasse Representing the Face of the World* (Cambridge, 1635), p. 77. See also pp. 319-20, 344-45, 503-4.

<sup>39</sup> *Ibid.*, p. 78.

<sup>40</sup> Donne, *LXXX Sermons*, xxxvi, p. 357.

### CHAPTER 3. A NEW THEORY OF THE EARTH

<sup>1</sup> George Hakewill, *An Apologie or Declaration of the Power and Providence of God in the Government of the World* (London, 1635), p. 56.

<sup>2</sup> *Ibid.*, p. 56. Hakewill cites a number of passages from St. Augustine, St. Thomas, and others in support of this interpretation, noting also (*ibid.*, pp. 152-53) the inconsistencies of St. Augustine's exegesis.

<sup>3</sup> John Spencer, *A Discourse concerning Prodigies* (London, 1665), sig. (A).

<sup>4</sup> Thomas Sprat, *The History of the Royal-Society of London* (London, 1667), p. 349.

<sup>5</sup> Joseph Glanvill, *Philosophia Pia: or, A Discourse of the Religious Temper, and Tendencies of the Experimental Philosophy* (London, 1671), p. 22.

<sup>6</sup> *Essays on Several Important Subjects* (London, 1676), Essay IV, p. 8. Cf. Glanvill, *Plus Ultra: or, the Progress and Advancement of Knowledge* (1668) and the exchanges with Henry Stubbe, one of those who contended that natural philosophy as practiced by the Society was conducive to a mechanical conception of law and to disbelief in God: Stubbe, *The Plus Ultra reduced to a Non Plus* (1670); Glanvill, *A Praefatory Answer to Mr. Henry Stubbe* (1671); Stubbe, *A Reply to a Letter of Dr. Henry More* (printed in Mr. Ecebolius Glanvil's Praefatory Answer to Hen. Stubbe.) (1671); Glanvill, *A Further Discovery of M. Stubbe* (1671). Stubbe also published a series of tracts in reply to Sprat's *History: A Censure upon Certaine Passages Contained in the History of the Royal Society, As being Destructive to the Established Religion* (1670), *Legends no Histories: or, A Specimen Of some Animadversions Upon the History of the Royal Society* (1670), *Campanella Revived, Or an Enquiry into the History of the*

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Royal Society (1670), and *A Reply unto the Letter written to Mr. Henry Stubbe in Defense of the History of the Royal Society* (1671).

<sup>7</sup> See also Robert Boyle, *Of the Excellency and Grounds of the Corpuscular or Mechanical Philosophy* (1674), in *The Works of the Honourable Robert Boyle* (6 vols., London, 1772), iv 68, *A Free Inquiry into the Vulgarly Received Notion of Nature* (1685-86), in *Works*, v 218, *The Christian Virtuoso* (1690), in *Works*, v 514-15.

<sup>8</sup> Cf. Nicolson, *The Microscope and English Imagination*, *Smith College Studies in Modern Languages*, xvi (1935).

<sup>9</sup> John Wilkins, *The Discovery of a New World* (London, 1707), pp. 64, 65.

<sup>10</sup> *Of the Principles and Duties of Natural Religion* (London, 1699), p. 78. The *Principles* were first published in 1678.

<sup>11</sup> [Henry More], *Divine Dialogues* (2 vols., London, 1668), i 200.

<sup>12</sup> *An Antidote against Atheism*, in *A Collection Of Several Philosophical Writings* (London, 1712), p. 48.

<sup>13</sup> *Divine Dialogues*, i 200-1. On the relation of mountains to springs, see *post*, pp. 29, 34-35.

<sup>14</sup> Burnet's reply to the first letter, dated January 13, 1681, and a copy of Newton's second letter (undated, but presumably written in January, 1681) are in the Portsmouth Collection at Cambridge. The original of Newton's letter was returned to Lord Portsmouth after copying. Sir David Brewster prints the letter in *Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton* (2 vols., Edinburgh, 1855), ii 447-54. I have been unable to find the first Newton letter, the date of which (December 24, 1680) is fixed by Burnet's reference to it in his letter of January 13. Its contents have been inferred from Burnet's reply.

<sup>15</sup> Herbert [Croft], *Some Animadversions Upon . . . the Theory of the Earth* (London, 1685), p. 67.

<sup>16</sup> *Ibid.*, p. 70. Croft is using a common variant of the familiar argument against the deists. Compare its statement by William Sherlock, Dean of St. Paul's: "Nature is as great a Mystery as Revelation, and it is no greater affront to our Understandings, no more against Reason for God to reveal such things to us as our Reason cannot comprehend, than it is to make a whole World, which Reason cannot comprehend" (*Sermons Preach'd upon Several Occasions* (London, 1700), pp. 298-99).

<sup>17</sup> *Animadversions*, pp. 138, 140-41.

<sup>18</sup> *Ibid.*, p. 141.

<sup>19</sup> *An Answer to the late Exceptions made by Mr Erasmus Warren*, p. 22. The controversy between Warren and Burnet was continued in a series of pamphlets in which the arguments on both sides are repeated without the addition of significant new material. Cf. Erasmus Warren, *A Defence of the Discourse Concerning the Earth Before the Flood* (1691); [Burnet], *A Short Consideration of Mr Erasmus Warren's Defence of his Exceptions* (1691); Warren, *Some Reflections upon the Short Consideration Of the Defence of the Exceptions* (1692).

In a pamphlet printed in 1691, Matthew Mackaile, a physician and author of a number of medical tracts, criticizes Burnet from another point of view, arguing (rather obscurely) from the "Analogie" of the earth "with Mans body, and . . . with the makeing of Cheese and Butter" (Matthew Mackaile,



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*Terrae Prodomus Theoricus . . . by way of Animadversions, upon Mr. Thomas Burnet's Theory* (Aberdeen, 1691), p. 4).

<sup>20</sup> John Ray, *Miscellaneous Discourses Concerning the Dissolution and Changes of the Earth* (London, 1692), pp. 64ff., 82ff., 98-100.

<sup>21</sup> *Ibid.*, pp. 165-66.

<sup>22</sup> *Ibid.*, pp. 166, 166-67, 167.

<sup>23</sup> *Ibid.*, p. 168. See *post*, pp. 34-35.

<sup>24</sup> *Ibid.*, pp. 41-42. But see p. 103, where Ray mentions the "malignant effect" of the Fall, in shortening the lives of men and animals.

Locke makes use of a similar hypothesis in his brief discussion of the controversy in his tract on education, which appeared in 1693. Cf. [John Locke], *Some Thoughts concerning Education* (London, 1693), p. 229. Locke discusses Burnet's theory adversely in a letter to Sir James Tyrrell presumably written in 1687. Cf. a letter from Tyrrell to Robert Boyle, dated May 25, 1687, giving a summary of Locke's views as contained in his letter to Tyrrell, in *The Works of Robert Boyle*, vi 620-21. See also *An Essay concerning Human Understanding* (1690), ed. Alexander Campbell Fraser (2 vols., Oxford, 1894), I 248.

<sup>25</sup> [John Beaumont], *Considerations On a Book, Entitled The Theory of the Earth* (London, 1693), p. 26. Beaumont qualifies this assertion by conceding that "there is no Mountain on the Earth now, that is an original Mountain, or that existed when the World first rose" and concludes "with Aristotle, that the Sea and Land have chang'd places, and continue so to do" (*ibid.*, p. 30).

<sup>26</sup> *Ibid.*, p. 56.

<sup>27</sup> *Ibid.*, pp. 56-60. Beaumont refutes Burnet's theory of the circulation of waters in the original earth by showing that vapors carried to the poles would not have condensed there but would have frozen, and by showing that there would have been no reflux of waters to the equator, since axial rotation would not, as Burnet thought, have caused polar elongation.

<sup>28</sup> In the second book, Beaumont criticizes Burnet's theory of axial verticity and perpetual spring, arguing that the succession of seasons is evidence of wisdom and design.

<sup>29</sup> *Ibid.*, p. 169.

<sup>30</sup> In 1694, Beaumont published a *Postscript* to the *Considerations*, but without adding any important new material.

In the two following years two pamphlets were published supporting the principle of terrestrial identity with additional, if less significant, arguments. In a tract on the *Anatomy of the Earth* which appeared in 1694, Thomas Robinson, Rector of Ousby in Cumberland and an amateur natural historian, suggested that the Flood was caused by a miraculous disturbance of the tides; Archibald Lovell, author of *A Summary of Material Heads Which may be Enlarged . . . into a Compleat Answer to Dr. Burnet's Theory of the Earth*, published in 1696, proposed that the Flood was caused by a miraculous release of the waters which had been drawn off from the land on the third day.

<sup>31</sup> Woodward argues explicitly that "the *Deluge* did not happen from an accidental Concourse of *Natural Causes*, as the *Author* above-cited [Burnet] is of Opinion," but from the "Assistance of a *Supernatural Power*" (John Woodward, *An Essay towards a Natural History of the Earth* (London, 1702), p. 164).

<sup>32</sup> *Ibid.*, pp. 59-60.

<sup>33</sup> *Ibid.*, p. 245.

<sup>34</sup> *Ibid.*, pp. 246-47, 247.

<sup>35</sup> *Ibid.*, p. 146.

<sup>36</sup> *Ibid.*, p. 148.

<sup>37</sup> *Ibid.*, p. 149. Woodward refers to the necessity of mountains to the circulation of waters (*ibid.*, pp. 152-53) and shows that Burnet's theory of circulation in the original earth, dependent on the mistaken supposition of axial elongation, is unacceptable (*ibid.*, p. 254n).

Woodward supposes that the earth which precipitated from the waters of the Flood was of a uniformly spherical shape. This does not mean, however, that the original earth was without mountains or other irregularities, but that the present earth, immediately after the Flood, had none. Cf. *ibid.*, p. 264.

<sup>38</sup> *Ibid.*, pp. 264, 153, 149. In the same year *Two Essays Sent in a Letter from Oxford* were published by L. P. in reply to Woodward's *Natural History*. L. P. rejects Woodward's supposition that the earth's surface was dissolved by the Flood, arguing that the marine fossils he had discovered were those of extinct land animals. By refusing Woodward's concession to Burnet, L. P. further strengthens Woodward's own contention that the present state of the earth is a production of law. Cf. J[ohn] A[rbutnot], *An Examination of Dr. Woodward's Account of the Deluge* (London, 1697). Woodward, the Dr. Fossile of Gay's comedy, *Three Hours after Marriage* (1717), was a favorite subject of Scriblerian wit. Martin Scriblerus himself "projected a Menstruum to dissolve the Stone, made of Dr. Woodward's *Universal Deluge-water*" (*Memoirs Of the Extraordinary Life, Works, and Discoveries of Martinus Scriblerus* (1741), ed. Charles Kerby-Miller (New Haven, 1950), p. 168).

Woodward's theory of dissolution was defended against L. P. and others by John Harris, a Fellow of the Royal Society and preacher of the Boyle sermons of 1698, in *Remarks On some Late Papers, Relating to the Universal Deluge* (London, 1697). For two further items in the controversy, see App. I, p. 99.

<sup>39</sup> William Whiston, *A New Theory of the Earth* (London, 1708), p. 100. That is, day and night were both six months long.

<sup>40</sup> In *The Legend of Noah: Renaissance Rationalism in Art, Science, and Letters* (Urbana, 1949), Don Cameron Allen observes (p. 108), "In the antediluvian earth, Whiston states, men enjoyed a perpetual equinox, for the ecliptic and the equator were one." As the quotation from Whiston immediately below indicates, Mr. Allen has overlooked Whiston's distinction between the antediluvian state and the primitive state before the Fall.

<sup>41</sup> *Ibid.*, p. 85.

<sup>42</sup> *Ibid.*, p. 104.

<sup>43</sup> *Ibid.*, p. 348.

<sup>44</sup> *Ibid.*, p. 326.

<sup>45</sup> *Ibid.*, pp. 326, 328. Whiston conceives of mountains as having originated at the creation, arguing, as Beaumont had earlier, that a smooth spherical surface would not have resulted from the process of precipitation out of chaos. He does, however, consider that antediluvian seas were smaller than they became after the Flood, since the Flood increased the total quantity of water in the earth.



<sup>46</sup> *Philosophical Transactions Abridged*, Vol. vi, ed. John Eames and John Martyn (London, 1734), Pt. 11, 1-5. The paper was first printed in the *Transactions Abridged* in 1734. A note (*ibid.*, p. 5) indicates that it was written "about a Year and a half" before Whiston's *New Theory*, that it was subsequently read to the Society in December, 1694, and thereafter deposited unpublished in the archives of the Society, since Halley feared that he "might have adventured ultra crepidam" (*ibid.*, p. 5).

Halley discusses the alternative hypotheses offered by Burnet and Ray. Against Ray, Halley contends that the center of gravity of a body cannot be changed unless its components be altered. He evidently overlooked Ray's explicit reliance on providential intervention. Burnet's theory he does not consider worthy of refutation: "I shall say nothing of Dr Burnet's Hypothesis, nor of the many Insufficiencies thereof, as jarring as much with the Physical Principles of Nature, as with the Holy Scriptures, which he has undertaken to reconcile" (*ibid.*, p. 3).

In this paper, Halley conjectures that collision with a comet would produce an impact sufficient for the "raising up Mountains where none were before" (*ibid.*, p. 3); this does not show, however, that Halley conceived of all mountains as having originated at the Flood, and his theory of the circulation of waters, published in the *Transactions* in 1691, indicates that on the contrary he did not. See *post*, pp. 34-35.

<sup>47</sup> Cf. Swift's ironic account of Whiston's prediction in a public lecture that the earth would be destroyed by a comet: "Friends and Fellow-Citizens, all speculative Science is at an end; the Period of all things is at Hand; on Friday next this World shall be no more." At "five Minutes after Five the Truth will be Evident; in that instant the Comet shall appear, of which I have heretofore warn'd you. As ye have heard, believe. Go hence, and prepare your Wives, your Families and Friends, for the universal Change" ([Jonathan Swift], "A True and Faithful Narrative", *Miscellanies. The Third Volume* (London, 1732), p. 241). Cf. also [Arbuthnot], *A Supplement to Dean Sw--t's Miscellanies* (1739), in *The Miscellaneous Works of the Late Dr. Arbuthnot* (2 vols., Glasgow, 1751), II 108, and *Memoirs of Martinus Scriblerus*, p. 167.

<sup>48</sup> In *A Conference with a Theist*, a manual published in 1696 by William Nichols, Rector of Sesley in Sussex, the author refuses to concede, with Woodward and Whiston, that the Flood caused a substantial change in the constitution of the earth. He offers an explanation that does not require him to admit that the present earth differs in any respect from its original form, suggesting that the waters of the abyss were drawn out onto the surface of the earth by a miraculous approximation of the moon (William Nichols, *A Conference with a Theist* (2 vols., London, 1723), I 253ff., II 472-74). In the same year, Thomas Robinson published a second tract (see also *ante*, n. 30) in which he suggests that the Flood took place when the molten core of the earth caused an eruption of the subterraneous waters; this hypothesis allows him to suppose, like Nichols, that the Flood was neither the cause nor the effect of a substantial alteration in the surface of the earth (*New Observations on the Natural History of this World of Matter* (London, 1696), sigs. A2-A2<sup>v</sup>, (a6)<sup>v</sup>-(a7)<sup>v</sup>, pp. 31ff., 75ff., and *passim*). Cf. also John Edwards, *Brief Remarks upon Mr. Whiston's New Theory of the Earth* (London, 1697).

## NOTES

<sup>40</sup> Robert St. Clair, *The Abyssinian Philosophy Confuted: or, Telluris Theoria Neither Sacred, nor agreeable to Reason* (London, 1697), pp. 125ff.

<sup>50</sup> Hooke was one of the most assiduous of the members in the practice of experimental philosophy. He did important work in microscopy (his *Micrographia*, which appeared in 1665, was the first major treatise on the subject) and anticipated Newton in certain aspects of the theories of light and gravity (see *post*, Ch. 4, n. 5 and p. 44). In 1664, Sir John Cutler left a lectureship of £50 a year, primarily for Hooke's benefit.

<sup>51</sup> *Philosophical Transactions Abridged*, Vol. II, ed. John Lowthorp (London, 1716), 126-29.

<sup>52</sup> *Ibid.*, p. 127.

<sup>53</sup> *Ibid.*, pp. 128-29.

<sup>54</sup> John Keill, *An Examination of Dr. Burnet's Theory of the Earth* (Oxford, 1698), pp. 31, 33.

<sup>55</sup> *Ibid.*, p. 177.

<sup>56</sup> *Ibid.*, p. 52.

<sup>57</sup> *Ibid.*, pp. 54, 55. In Ch. VI, Keill confirms this position by showing that Burnet failed to account adequately for the circulation of waters in the primitive earth.

<sup>58</sup> *Ibid.*, pp. 55-57.

<sup>59</sup> *Ibid.*, pp. 62-63. Keill showed further, by calculation, that the tropical variation of the sun provides a more equal distribution of solar heat than would its constant motion in the equator (*ibid.*, pp. 69-75). He also showed that the present area of the sea is requisite to the circulation of waters (*ibid.*, pp. 89-93).

<sup>60</sup> The *Reflections*, which are anonymous, have also been attributed to Burnet, and were included in later editions of Burnet's works.

<sup>61</sup> See *post*, App. I for a short-title checklist of the controversy.

## CHAPTER 4. THE PRINCIPLES OF HEAVENLY LAW

<sup>1</sup> Percy Bysshe Shelley, *Queen Mab; A Philosophical Poem* (London, 1813), p. 184.

<sup>2</sup> Sir Isaac Newton, *Opera quae Exstant Omnia* (5 vols., London, 1782), IV 429.

<sup>3</sup> James Hervey, "Contemplations on the Starry Heavens," in *Meditations and Contemplations* (2 vols., London, 1769), II 116. The *Meditations* were first published in 1748; at least twenty-four editions appeared before the end of the century. Cf. the related ideas in *Theron and Aspasio* (1755) (2 vols., London, 1802), I 443ff., II 123ff., 218ff., *A Collection of the Letters Of the late Reverend James Hervey* (2 vols., London, 1760), I 190-91, II 125-26, and *Aspasio Vindicated* (Edinburgh, 1765), p. 34. See Alan D. McKillop, "Nature and Science in the Works of James Hervey," *University of Texas Studies in English*, XXVIII (1949), 124-38.

<sup>4</sup> *Meditations and Contemplations*, II 176-77.

<sup>5</sup> Newton was not the first to use the law of inverse squares. Hooke, Halley and others had earlier considered the application of the formula  $m/d^2$  to the observed motions of the moon. Newton himself had worked on the inverse square law in 1665 and 1666. It has been suggested that he was prevented from verifying the hypothesis at that time by inaccurate data. The distance of the moon was stated as a multiple of the diameter of the earth,

and since an accurate measurement of the earth's diameter was not available until 1671, its substitution in the equation would, it is suggested, have given Newton results that did not agree with observation. Since, however, a close approximation to Picard's corrected figure was known to Newton before 1665, this is unlikely to have been the cause of delay. It is more probable that he was unable to satisfy himself that bodies gravitate as massive points, and that it was Huygens' later proof of this theorem that allowed him to proceed with the theory in 1685.

<sup>6</sup> See F. E. L. Priestley, "Newton and the Romantic Concept of Nature," *University of Toronto Quarterly*, xvii (1948), 323-36; rev. by Monroe K. Spears, *Philological Quarterly*, xxviii (1949), 396-97.

<sup>7</sup> *Opera*, iv 437.

<sup>8</sup> *Ibid.*, p. 438.

<sup>9</sup> *Mathematical Principles of Natural Philosophy*, ed. Florian Cajori from the translation by Andrew Motte (Berkeley, 1934), p. 634.

<sup>10</sup> *Ibid.*, p. 634.

<sup>11</sup> In a third addition, the "General Scholium" to Bk. III, Newton declines to commit himself to any positive explanation: "I do not frame hypotheses" (*ibid.*, p. 634).

<sup>12</sup> *Correspondence of Sir Isaac Newton and Professor Cotes*, ed. J. Edleston (London, 1850), pp. 158-59. Cf. Cajori, pp. 634-35.

<sup>13</sup> *Opera*, iv 385-86, 386.

<sup>14</sup> Cajori, pp. 527-28.

<sup>15</sup> *Opera*, iv 431 (December 10, 1692).

<sup>16</sup> *Ibid.*, pp. 431-32.

<sup>17</sup> *Ibid.*, p. 433.

<sup>18</sup> See *ante*, p. 40.

<sup>19</sup> *Opticks: or, A Treatise of the Reflections, Refractions, Inflections and Colours of Light* (London, 1718), p. 324.

<sup>20</sup> *Ibid.*, p. 325.

<sup>21</sup> *Ibid.*, p. 327. An indication that Newton's assertion of the vacuity of space in the passage quoted from the *Principia* on comets may refer only to the absence of non-ethereal matter is supplied by his discussion of fluid mediums in the *Opticks*: "against filling the Heavens with *fluid* Mediums, unless they be exceeding rare, a great Objection arises from the regular and very lasting Motions of the Planets and Comets in all manner of Courses through the Heavens. For thence it is manifest, that the Heavens are void of all sensible Resistance, and by consequence of all sensible Matter." "And therefore to make way for the regular and lasting Motions of the Planets and Comets, it's necessary to empty the Heavens of all Matter, except perhaps some very thin Vapours, Steams or Effluvia, arising from the Atmospheres of the Earth, Planets and Comets, and from such an exceedingly rare Aethereal Medium as we described above" (*ibid.*, pp. 339, 343. My italics). This makes it appear that Newton's insistence in the *Principia* on the vacuity of space may have been directed, not against the hypothesis of an ether, but against the Cartesian hypothesis of fluid vortices. See *post*, n. 36.

<sup>22</sup> *Ibid.*, pp. 344, 345.

<sup>23</sup> *Opera*, iv 327.

<sup>24</sup> Quoted from the manuscript in the Portsmouth Collection at Cam-



bridge, Add. 3970, fol. 540<sup>v</sup>. Brewster prints a version of the letter in *Memoirs*, II 390-409.

<sup>25</sup> *Ibid.*, fol. 541. Newton repeats this statement almost verbatim in a letter to Oldenburg dated January 25, 1676. Cf. *Correspondence of Scientific Men of the Seventeenth Century*, ed. S. P. Rigaud (2 vols., Oxford, 1841), II 389.

<sup>26</sup> Portsmouth Add. 3970, fol. 573<sup>v</sup>.

<sup>27</sup> *Opticks*, p. 345.

<sup>28</sup> *Ibid.*, p. 324.

<sup>29</sup> Woodward, *An Essay towards a Natural History*, p. 52.

<sup>30</sup> Richard Bentley, *Eight Sermons Preach'd at the Honourable Robert Boyle's Lecture*, In . . . MDCXCII (London, 1724), pp. 281, 278.

<sup>31</sup> The eighth sermon was preached on November 5, 1692.

<sup>32</sup> *Ibid.*, pp. 276-77. The similarity in phrasing to Newton's letter of February 25, 1693 (see *ante*, p. 40) suggests that the printed text of the sermon was revised in the light of the Newton correspondence.

<sup>33</sup> *Ibid.*, p. 274.

<sup>34</sup> *Ibid.*, p. 281.

<sup>35</sup> *Ibid.*, p. 127.

<sup>36</sup> *An Essay towards a Natural History*, pp. 51, 52, 51. The strong reaction against Descartes in England after about 1665 may help to explain the contemporary failure to recognize in the *Principia* the elements of an ethereal hypothesis. Newton's theory of gravity was generally understood to support belief in the providential exercise of divine power; the Cartesian theory of vortices in a fluid plenum was generally thought to support a mechanical conception of physical law, and was almost universally opposed, by both scientists and divines, for that reason. See Nicolson, "The Early Stage of Cartesianism in England," *Studies in Philology*, xxvi (1929), 356-74, and Sterling P. Lamprecht, "The Rôle of Descartes in Seventeenth-Century England," *Studies in the History of Ideas*, III (New York, 1935), 181-240.

<sup>37</sup> *An Essay towards a Natural History*, p. 52.

<sup>38</sup> *A New Theory of the Earth*, p. 3.

<sup>39</sup> *Ibid.*, pp. 7-8.

<sup>40</sup> *Ibid.*, p. 6.

<sup>41</sup> *Sermons and Essays Upon Several Subjects* (London, 1709), p. 209. Cf. *Astronomical Principles of Religion* (London, 1717), pp. 45, 82, 113, 245.

<sup>42</sup> Samuel Clarke, *A Discourse Concerning the Unchangeable Obligations of Natural Religion* (London, 1724), p. 14. In 1698 Clarke succeeded Whiston in the Chaplaincy to the Bishop of Norwich, a post he held until 1709, when he became Rector of St. James', Westminster. His brother, the Dean of Salisbury, published a handbook on Newtonianism in 1730 (see *post*, Ch. 5, n. 9).

<sup>43</sup> *A Collection of Papers, Which passed between . . . Mr. Leibnitz, and Dr. Clarke* (London, 1717), p. 5.

<sup>44</sup> *Ibid.*, p. 15.

<sup>45</sup> *Ibid.*, p. 45. Cf. [A. A. Sykes], "The Elogium of the late . . . Samuel Clarke," *The Present State of the Republick of Letters*, IV (1729), 52-69. Sykes attributes to Clarke the belief that it is natural philosophy "which teaches us the Extent of the Powers of Matter and Motion: It is that, which gives us the strongest evidence of God's continual Government of the World." To the question, "Whether there be a continual immediate Government of the Universe; or, whether God so disposed all things at first, as

not to interpose by a *continual actual Operation* upon them," Clarke answered that God "preserves and governs, disposes and directs continually all the Motions and Powers of Things in the natural World" (*ibid.*, pp. 54, 55, 56).

<sup>46</sup> George Cheyne, *Philosophical Principles of Religion* (London, 1724), p. 10.

<sup>47</sup> *Ibid.*, p. 39.

<sup>48</sup> *Ibid.*, p. 42.

<sup>49</sup> *Ibid.*, p. 41.

<sup>50</sup> *A Defence of Natural and Revealed Religion: Being an Abridgement of the [Boyle] Sermons*, ed. Gilbert Burnet, Vicar of Coggeshall (4 vols., London, 1737), III 348.

<sup>51</sup> François de Voltaire, *The Metaphysics of Sir Isaac Newton*, tr. David Erskine Baker (London, 1747), p. 65.

<sup>52</sup> *Ibid.*, pp. 5-6.

<sup>53</sup> Colin Maclaurin, *An Account of Sir Isaac Newton's Philosophical Discoveries* (London, 1750), pp. 88, 89. The first edition appeared in 1748.

<sup>54</sup> *Ibid.*, p. 406. Cf. also Locke, *An Essay concerning Human Understanding* (1690), Fraser, I 171n, *Some Thoughts concerning Education* (1693), pp. 228-29, *Reply to the Bishop of Worcester's Answer to his Second Letter* (1699), in *The Works of John Locke* (10 vols., London, 1812), IV 467-68, *Essay* (1700 version), Fraser, I 171; W. James s'Gravesande, *Mathematical Elements of Natural Philosophy*, tr. in 1721 by J. T. Desaguliers (2 vols., London, 1747), II 326-27; [William Wollaston], *The Religion of Nature Delineated* (1722) (London, 1724), p. 79; Henry Needler, letters to William Duncombe dated July 15, July 27, August 6, September 2, October 5, 1711, in *The Works of Mr. Henry Needler* (London, 1728), pp. 114, 116, 118-24, 125-33, 142-43, 169-86, 188-90; [Samuel Boyse], *Deity: A Poem* (1739) (London, 1749), ll. 429-32, p. 25; Thomas Morgan, *Physico-Theology* (London, 1741), pp. v, 6-7, 16-17, 28.

<sup>55</sup> John Ray, *The Wisdom of God Manifested in the Works of the Creation* (London, 1735), pp. 63, 67. *The Wisdom of God* was first published in 1691 and reached a twelfth edition in 1759.

<sup>56</sup> *Ibid.*, p. 215. Ray cites Keill's *Examination* to show that the tropical variation of the sun reduces the mean temperature of the tropical zone and increases that of the temperate zones (*ibid.*, pp. 202-4). He also quotes Keill to show that the present area of the sea is necessary to maintain an equilibrium between the quantity of water emptied into it by rivers and the quantity exhaled from it by evaporation (*ibid.*, p. 80). The references to Keill first appeared in the third edition of 1701. In defense of mountains, Ray gives the familiar arguments from use and beauty.

<sup>57</sup> William Derham, *Physico-Theology: or, A Demonstration of the Being and Attributes of God, from His Works of Creation* (Edinburgh, 1773), p. 100.

<sup>58</sup> *Ibid.*, p. 74n. Derham contends that "the distribution of the waters, and the dry land, although it may seem rude and undesigned to a careless view, and is by some taxed as such, yet is admirably well adjusted to the uses and conveniences of our world," arguing, with Ray, that the present proportion of land and sea is necessary to supply the earth with fresh water, and citing the theories of circulation developed by Hooke, Halley, and Keill (*ibid.*, pp. 73-74, 74-75n, 75-76n).



<sup>50</sup> *Astro-Theology: Or a Demonstration of the Being and Attributes of God, From a Survey of the Heavens* (London, 1715), p. 158.

<sup>51</sup> *Ibid.*, p. 60.

<sup>52</sup> *Ibid.*, p. 14.

<sup>53</sup> Cheyne, *Philosophical Principles of Religion*, p. 254.

<sup>54</sup> *Ibid.*, pp. 279-80. Cheyne cites Halley's theory of circulation (*ibid.*, p. 278).

<sup>55</sup> *Ibid.*, p. 195.

<sup>56</sup> Whiston, *Astronomical Principles of Religion*, sig. A, pp. 106, 255.

<sup>57</sup> In the second quarter of the century the *Principia* reached a large popular audience through the medium of abridgements, commentaries, and the Motte translation. A second edition was published by Roger Cotes in 1713, a third by Henry Pemberton in 1726. The first English translation was made by Andrew Motte in 1729. J. T. Desaguliers translated Gravesande's *Introduction to Sir Isaac Newton's Philosophy* into English in 1721. In 1728 Pemberton published his well-known *View of Sir Isaac Newton's Philosophy*, and subscribers included Bentley, John Clarke, Dean of Salisbury, Samuel Clarke, Gravesande, Halley, James Harris, Lord Orrery, Shaftesbury, Pope, Wollaston, Young, and Newton, who ordered twelve copies. Voltaire's two handbooks of Newtonian theory, *The Elements of Sir Isaac Newton's Philosophy* and *The Metaphysics of Sir Isaac Newton* were translated into English in 1738 and 1747. Colin Maclaurin's *Account of Sir Isaac Newton's Philosophical Discoveries* appeared in 1748.

During this period the Newtonian philosophy achieved, what is more remarkable, the social currency of the drawing-room. The orrery, invented about 1708, was in popular demand by 1735 (see *post*, pp. 53-55). Physics, it appears, became a subject of interest to young gentlemen and ladies. Cf. Francesco Algarotti, *Sir Isaac Newton's Philosophy Explain'd For the Use of the Ladies*, translated into English by Mrs. Elizabeth Carter in 1739 and reissued in 1742 and 1765; Benjamin Martin, *A Plain and Familiar Introduction to the Newtonian Philosophy . . . for the Use of . . . Gentlemen and Ladies* (1751); Tom Telescope, *The Newtonian System of Philosophy Adapted to the Capacities of young Gentlemen and Ladies* (1761); and James Ferguson, *An Easy Introduction to Astronomy, for Young Gentlemen and Ladies* (1768).

<sup>58</sup> Richard Glover, "Poem on Sir Isaac Newton," prefixed to [Henry Pemberton], *A View of Sir Isaac Newton's Philosophy* (London, 1728), sig. (a3). Glover's poem was reprinted in the *London Magazine* (1734), pp. 490-92, 545-46. See Nicolson, *Newton Demands the Muse* (Princeton, 1946).

<sup>59</sup> James Thomson, "To the Memory of Sir Isaac Newton," ll. 40-42, in *The Poetical Works of James Thomson*, ed. the Rev. Duncan C. Tovey (2 vols., London, 1897), II 176. Cf. also *The Seasons*, ed. Otto Zippel (Berlin, 1908), *Summer* (1727), A. 89-93, C. 1703-21, *Spring* (1728), A. 799-807. See Herbert Drennon, *James Thomson and Newtonianism*, unpublished doctoral dissertation (Chicago, 1930), several chapters of which were published in a series of articles between 1934 and 1936.

<sup>60</sup> *Poetical Works*, II 179, ll. 140-41, 142-43. These principles also sustain the concept of terrestrial order employed in the *Seasons*. The seasons, for Thomson, are the earthly analogue of the circle of heavenly perfection. "These, as they change, Almighty Father! these, Are but the varied God" (Zippel, *A Hymn* (1730), A. 1-2). Cf. *Winter* (1726), A. 143-45, *Summer*,

A. 28-30, C. 39-42. Note that on one occasion (*Spring*, A. 354-79), Thomson uses Burnet's theory of the Flood and the antediluvian equinox. See also *Liberty* (1735-36), iv.283-84, in *Poetical Works*, II 75. Thomson had a copy of the *Sacred Theory* in his possession. Cf. [Eric S. Taylor], "James Thomson's Library," *London Times Literary Supplement*, June 20, 1942, p. 312, rev. by Alan D. McKillop, *Philological Quarterly*, xxii (1943), 179-80. This usage is, however, inconsistent with the argument of the *Seasons* as a whole. See P. K. Das, "James Thomson's Appreciation of Mountain Scenery," *Englische Studien*, LXIV (1929), 65-70.

<sup>70</sup> *The Newtonian System of the World, The Best Model of Government* (Westminster, 1728), p. iv. Civil law is the social ectype of the heavenly order: "ATTRACTION now in all the Realm is seen, To bless the Reign of GEORGE and CAROLINE" (*ibid.*, ll. 191-92, p. 34).

<sup>71</sup> David Mallet, *The Excursion* (1728), in *The Works of David Mallet* (3 vols., London, 1759), I 101, 100. Cf. *ante*, App. II, n. 6.

<sup>72</sup> *Deity: A Poem* (1739), ll. 376, 375-76, p. 22.

<sup>73</sup> Edward Young, *The Complaint: or, Night-Thoughts* (London, 1750), pp. 257, 268, 260. Night IX was first published in 1745. Cf. also [Robert Gambol], *The Beauties of the Universe. A Poem* (London, 1732), *passim*; Henry Baker, *The Universe. A Philosophical Poem* (London, ?1734), *passim*; Henry Jones, *Merit. A Poem*, in *Poems* (Dublin, 1756), pp. 36-37; George Bally, *The Wisdom of the Supreme Being. A Poem* (Cambridge, 1756), pp. 21-22, 25-26, 27.

<sup>74</sup> J[ohn] H[arris], *Astronomical Dialogues between a Gentleman and a Lady* (London, 1725), p. 170.

<sup>75</sup> A contemporary engraving of the finest of the Wright orreries is reproduced facing p. 87. See my unpublished doctoral dissertation (Princeton, 1953), pp. 449-69 for engravings and photographs of the orreries discussed here, together with several others. It is a pleasure to acknowledge the generosity shown to me by Howard C. Rice, Jr., of the Department of Rare Books, Princeton University Library, in placing at my disposal the results of his extensive work in eighteenth-century orreries.

<sup>76</sup> Mercury, Venus, Earth, Mars, Jupiter, and Saturn. Less elaborate orreries showed only the inferior planets, excluding Mars, Jupiter, and Saturn.

<sup>77</sup> Normally the ten known moons of the system were moved by hand.

<sup>78</sup> Young, *Love of Fame, The Universal Passion* (1725-28), in *The Works of the Author of the Night-Thoughts* (4 vols., London, 1757), I 131. Cf. *Night-Thoughts*, p. 260.

<sup>79</sup> *The Englishman* (2 vols., London, 1714), No. 11, October 29, 1713, I 50-51. Steele gives a full description of the machine and explains the origin of its name in that of "the Nobleman of that Title; for whose Use and by whose Generosity and Encouragement" it was built (*ibid.*, pp. 51-52). This notice led to widespread belief that the model built for the Earl of Orrery was the first of its kind. The orrery is now on exhibition in the Science Museum, South Kensington.

<sup>80</sup> One of these is described at length in Desaguliers' *Lectures of Experimental Philosophy* (London, 1719), pp. 194-201. In the same year, John Harris included a "Description of the Famous Instrument called the Orrery; made by Mr. John Rowley," with an engraving, in his *Astronomical Dialogues*, pp. 159-84.

<sup>81</sup> "The Description of the Great Orrery, lately made by Mr. Tho.

Wright," in *The Description and Use of the Globes* (London, 1738), pp. 152-85. *The Dictionary of National Biography* ascribes the treatise to John Harris (?1666-1719), author of *Remarks On some Late Papers, Relating to the Universal Deluge* (see *ante*, Ch. 3, n. 38) and the *Astronomical Dialogues* (see *ante*, p. 53 and n. 80), listing Joseph Harris, whose name appears on the title page, as the editor. The ascription seems plausible.

<sup>82</sup> *The Description and Use of the Globes*, title page.

<sup>83</sup> In *Tables and Tracts* (London, 1771), pp. 161ff., Ferguson printed directions for those who wished to build an orrery for themselves.

<sup>84</sup> Benjamin Martin, *Philosophia Britannica* (3 vols., London, 1771), I 203. In 1764, Roger Long, Master of Pembroke Hall in Cambridge, published an account of a new and remarkable adaptation of the orrery. This was an early model of the planetarium. "I have, in a room lately built in Pembroke Hall, erected a sphere of 18 feet diameter, wherein above thirty persons may sit conveniently." Within the sphere, on the inner surface of which the fixed stars were shown, globes representing the primary and secondary planets encircled the sun. Cf. Roger Long, *Astronomy, In Five Books* (2 vols., Cambridge, 1742-64), II iii-iv.

#### CHAPTER 5. THE TWO ORDERS

<sup>1</sup> Henry Brooke, *Universal Beauty: A Poem* (London, 1735), Pt. III, p. 8, l. 91.

<sup>2</sup> *Order, A Poem* (London, 1737), pp. 18, 9, and *passim*.

<sup>3</sup> "A Poem on the Divine Attributes," *Gentleman's Magazine*, VII (1737), P. 370.

<sup>4</sup> Cf. also "The Prospect. A Poem," *ibid.*, XIII (1743), 608; Young, *Night-Thoughts* (1745), pp. 268-69; *Necessity, not the origin of evil, religious or moral* (London, 1757), pp. (3)-4 and *passim*; [William Kenrick], *Epistles Philosophical and Moral* (London, 1759), Epistle VI, pp. 209-56.

<sup>5</sup> William King, *An Essay on the Origin of Evil*, tr. [Edmund Law] (London, 1731), p. 73. Law's translation was reissued in 1732 and 1739.

<sup>6</sup> *Ibid.*, pp. 96-97.

<sup>7</sup> *Ibid.*, p. 143.

<sup>8</sup> *Ibid.*, pp. 145-46. In support of this view, King offers an interpretation of the curse as effective not in the substance of nature but in the relation of nature to man, and gives an extended defense of the present constitution of the earth and its productions. He argues further that the penalty of death did not alter the intrinsic nature of man, since his paradisiacal original immortality "was no ways due to his Nature" but to a special divine covenant (third edition (Cambridge, 1739), *Sermon on the Fall of Man*, p. 75; cf. first edition, pp. 111-12).

<sup>9</sup> Published criticism was chiefly concerned with King's conception of space and duration, as it was presented by Law. Cf. [John Clarke], *A Defence of Dr. [Samuel] Clarke's Demonstration of the Being and Attributes of God. . . . Being an Answer To a late Book entitul'd, A Translation of Dr. King's Origin of Evil* (London, 1732) and *A Second Defence . . . in Answer to the Postscript published in the Second Edition of Mr. Law's Translation* (London, ?1733); an anonymous reply, *Dr. [Samuel] Clarke's Notions of Space Examin'd. . . . Being An Answer to two late Pamphlets* (London, 1733); and John Clarke, *A Third Defence. . . . Being a Vindica-*



*tion of the Two Former Defences* (London, 1733). John Clarke, Fellow of Corpus Christi College, Cambridge, the author of the three *Defences*, is to be distinguished from his contemporaries the Dean of Salisbury, who preached the Boyle sermons in 1720 (see *post*, p. 63) and published a handbook of Newtonian theory in 1730, and the Master of the Public Grammar School in Hull, who published two moral treatises in 1725 and 1727 (see *post*, p. 77).

<sup>10</sup> Law's translation, which has a 1731 imprint, was published in November of 1730, and was therefore available to Pope during the spring and summer of 1731 when he was composing the first three Epistles. Cf. Floyd Medford, "The 'Essay on Man' and the 'Essay on the Origin of Evil,'" *Notes and Queries*, cxciv (1949), 337-38.

<sup>11</sup> *Considerations on the Theory of Religion* (London, 1759), p. x. The *Considerations* first appeared in 1745.

<sup>12</sup> *An Essay on Man*, I.145-46.

<sup>13</sup> *Ibid.*, I.281-82, 289-94.

<sup>14</sup> *Ibid.*, I.155, 156.

<sup>15</sup> *Ibid.*, I.171-72. Note that ll. 157-60, which corroborate this theory of moral law, were added in 1743. See Robert W. Rogers, "Notes on Pope's Collaboration with Warburton in Preparing a Final Edition of the *Essay on Man*," *Philological Quarterly*, xxvi (1947), 358-66.

<sup>16</sup> Cf. Rogers, *The Early Vogue of the Essay on Man*, unpublished doctoral dissertation (Harvard, 1942). The majority of contemporary notices were strongly favorable. Cf. *The London Evening-Post*, March 17, 1733; *The Weekly Miscellany*, May 12, 1733; *Gentleman's Magazine*, iv (1734), 97-98; *Common Sense; or, The Englishman's Journal*, December 10, 1737. See also Robert Dodsley, *An Epistle to Mr. Pope, Occasion'd by his Essay on Man* (London, 1734).

<sup>17</sup> Mr. Bridges, *Divine Wisdom and Providence; An Essay. Occasion'd by the Essay on Man* (London, 1737), p. (i).

<sup>18</sup> *Ibid.*, p. (i).

<sup>19</sup> *Ibid.*, ll. 160, 159, p. 14.

<sup>20</sup> William Ayre, *Truth. A Counterpart to Mr. Pope's Essay on Man* (London, 1739), p. 8.

<sup>21</sup> J. P. de Crousaz, *An Examination of Mr Pope's Essay on Man*, tr. [Mrs. Elizabeth Carter] (London, 1739), *passim*.

<sup>22</sup> *A Commentary on Mr Pope's Principles of Morality, Or Essay on Man*, tr. [Samuel Johnson] (London, 1742), p. 18.

<sup>23</sup> *Ibid.*, p. 18. William Warburton replied to Crousaz in a series of letters published in *The History of the Works of the Learned* in 1738 and 1739 and reprinted as *A Vindication of Mr. Pope's Essay on Man* (London, 1740).

<sup>24</sup> Almonides, *Common Sense a Common Delusion. Or, The generally-received Notions of Natural Causes, Deity, Religion, Virtue, &c. As exhibited in Mr. Pope's Essay on Man, Proved Ridiculous* (London, 1751), p. 9.

<sup>25</sup> *Ibid.*, p. 35. As late as 1797, Joseph Warton comments on Pope's couplet on the general order in nature and in man (I.171-72): "It seems utterly impossible to explain these two remarkable lines in a way at all reconcilable to the doctrine of a lapsed condition of man, which opinion is the chief foundation of the Christian revelation, and the capital argument for the necessity of redemption" (*The Works of Alexander Pope, Esq.*, ed. Joseph

Warton (9 vols., London, 1797), III 33n). Again, in a note on Pope's description of the natural state in Epistle III: "It was before the Fall of Man, as the sacred historian tells us, that God pronounced — That all was good. But we must bear in mind that our Author never adverts to, or argues from, or supposes, any lapsed condition of Man" (*ibid.*, p. 109n). It is interesting to observe that Warburton had anticipated this objection by suggesting that Pope's description of mankind in the state of nature refers to the state of innocence *before the Fall*: "the Account the Poet gives of the *State of Innocence* is indeed neither more nor less, nor other, than that very Account of *Moses himself*" (*A Vindication of Mr. Pope's Essay on Man*, p. 93). It is clear, however, that Crousaz' interpretation of the third Epistle (which gave rise to Warburton's defense of it in the *Vindication*) and, later, Joseph Warton's, are closer to Pope's intentions than Warburton realized or wished to acknowledge. Cf. also Samuel Johnson's brilliant review of Soame Jenyns' *Free Inquiry in The Literary Magazine*, May 15, June 15, and July 15, 1757, pp. 171-75, 251-53, 301-6, and the anonymous pamphlet, *Necessity, not the origin of evil, religious or moral*, published in the same year.

<sup>26</sup> John Clarke, *An Enquiry into the Cause and Origin of Moral Evil* (London, 1721), pp. 133-34, sigs. A3-A3<sup>v</sup>.

<sup>27</sup> Clarke assumes, for example, that the thorns of *Genesis* 3.18 were created on the third day: "there is no reason to think that Thorns and Thistles were to be excepted out of That Part of the Creation, chap. i, ver. 11" (*ibid.*, pp. 118-19). He does not, however, give a consistent account of moral evil as a function of law, but uses instead an orthodox theory of free will.

<sup>28</sup> *The Principles of Moral Philosophy*, title page, p. iv.

<sup>29</sup> *Nature, A Poem* (London, 1747), title page.

<sup>30</sup> Soame Jenyns, *A Free Inquiry into the Nature and Origin of Evil*, in *The Works of Soame Jenyns*, ed. Charles Nalson Cole (4 vols., London, 1790), III 104-5.

<sup>31</sup> *Paradise Lost*, I.1-3, 6.

## CHAPTER 6. THE REASON AND FITNESS OF THINGS

<sup>1</sup> *An Essay on Man*, III.97-98.

<sup>2</sup> Thomas Hobbes, *Philosophicall Rudiments concerning Government and Society* (London, 1651), p. 20. Hobbes adds in a note: "the whole breach of the Lawes of Nature consists in the false reasoning, or rather folly of those men who see not those duties they are necessarily to performe toward others in order to their owne conservation" (*ibid.*, p. 20n). The *Philosophicall Rudiments* is Hobbes' translation of *De Cive*, published in Latin in 1642.

<sup>3</sup> *De Corpore Politico. Or the Elements of Law, Moral & Politick* (London, 1650), p. 10.

<sup>4</sup> *Leviathan, or The Matter, Forme, & Power of a Commonwealth* (London, 1651), p. 64.

<sup>5</sup> Cf. John Bowle, *Hobbes and his Critics* (London, 1951).

<sup>6</sup> Before 1688, Hobbes' theory of sovereignty was generally criticized by those who were concerned above all to support and defend the traditional belief that the sovereign was responsible only to God. Cf. [Sir Robert Filmer], *The Anarchy of a Limited or Mixed Monarchy* (1648), *The Necessity of The Absolute Power of all Kings* (1648), *Observations upon Aristotles Po-*



litiques (1652), *Observations Concerning the Originall of Government* (1652), and *Patriarcha: or the Natural Power of Kings* (1680); Roger Coke, *Justice Vindicated From the False Fucus put upon it*, by . . . Mr Thomas Hobbs (London, 1660), sig. C2; [Samuel Parker], *A Discourse of Ecclesiastical Politie* (1670) and *A Defence and Continuation of the Ecclesiastical Politie* (1671); William Lucy, *An Answer to Mr. Hobbs his Leviathan* (1673); Edward [Hyde], Earl of Clarendon, *A Brief View and Survey of the Dangerous and pernicious Errors . . . In Mr. Hobbes's Book, Entitled Leviathan* (Oxford, 1676), p. 72 and *passim*; [Sir William Temple], *An Essay upon the Original and Nature of Government*, in *Miscellanea* (London, 1680), pp. 45-95.

The theory of popular sovereignty did not, of course, originate in Locke's *Two Treatises of Government*, which appeared in 1690. It was, indeed, given extended statement almost fifty years earlier in [Philip Hunton], *A Treatise of Monarchie* (1643) and *A Vindication of the Treatise of Monarchy* (1644). Cf. also [Milton], *The Tenure of Kings and Magistrates* (1649); Alexander Rosse, *Leviathan drawn out with a Hook* (1653); George Lawson, *An Examination of the Political Part of Mr. Hobbs his Leviathan* (1657) and *Politica Sacra & Civilis* (1660); John Whitehall, *Behemoth Arraign'd* (1680); [Sir James Tyrrell], *Patriarcha non Monarcha* (1681). See A. H. MacLean, "George Lawson and John Locke," *Cambridge Historical Journal*, ix (1947), 69-77.

<sup>7</sup> *Observations, Censures and Confutations of Divers Errors in the 12, 13, and 14 Chap. of Mr. Hobs His Leviathan* (London, 1657), pp. 196-97. Lucy's *Examinations, Censures, and Confutations of Divers Errors in the Two first Chapters of Mr. Hobbes his Leviathan* had appeared previously, probably in 1656 (the title page incorrectly reads 1650). His *Answer to Mr. Hobbs his Leviathan* was published in 1673. Cf. T. Loveday, "Studies in the History of British Psychology: An Early Criticism of Hobbes," *Mind*, N.S. xvii (1908), 493-501.

<sup>8</sup> John Bramhall, *The catching of Leviathan, or the Great Whale* (London, 1658), p. 494.

<sup>9</sup> *Ibid.*, pp. 569, 570. Hobbes restated and reasserted his theory of reason, against Bramhall, in *An Answer to . . . Catching of the Leviathan*, published in 1681.

<sup>10</sup> *Justice Vindicated*, p. 25.

<sup>11</sup> [Thomas Tenison], *The Creed of Mr. Hobbes Examined* (London, 1671), p. 156.

<sup>12</sup> *Ibid.*, p. 134.

<sup>13</sup> *Ibid.*, p. 151.

<sup>14</sup> *Ibid.*, p. 153.

<sup>15</sup> [John Eachard], *Mr Hobbs's State of Nature Considered; In a Dialogue between Philautus and Timothy* (London, 1672), pp. 150, 151. Eachard published a second dialogue in the following year, entitled *Some Opinions of Mr Hobbs Considered*; it deals primarily with the controversy between Hobbes and Bramhall on freedom of the will.

<sup>16</sup> *Ibid.*, pp. 87-88.

<sup>17</sup> *Ibid.*, pp. 130-31. In terms of the parable of Roger, Dick, Tumbler, and Towser, reason justifies, not the desire of each for all, but a just and equitable distribution: each "ought to be content just with a *fourth part*" (*ibid.*, p. 133).

<sup>18</sup> *The Great Law of Nature . . . Vindicated from Mr. Hobbes his Abuses* (London, 1673), p. 2.

<sup>19</sup> *Ibid.*, p. 28. Cf. Whitehall, *The Leviathan Found out* (London, 1679), p. 23: "If *Cain* had lain with his Mother, there being no positive Law to prohibit it at that time, that we know of, had it been no sin? Or how came the Heathen to be a Law unto themselves, 2 *Rom.* 14. when they had not the express Law or Decalogue, except there is something Good or Evil of it self simply and absolutely?"

<sup>20</sup> James Lowde, *A Discourse Concerning the Nature of Man* (London, 1694), p. 63.

<sup>21</sup> *Ibid.*, pp. 63-64.

<sup>22</sup> *Ibid.*, p. 205.

<sup>23</sup> *Ibid.*, p. 52.

<sup>24</sup> *The Creed of Mr. Hobbes Examined*, p. 151.

<sup>25</sup> *A Discourse Concerning the Nature of Man*, pp. 63-64. My italics. Notice that Lowde (pp. 77ff.) rejects Locke's negative theory of innate ideas and contends that the law is inscribed in the reason. See *post*, n. 44.

<sup>26</sup> Nathanael Culverwel, *An Elegant And Learned Discourse Of the Light of Nature* (London, 1652), p. 49.

<sup>27</sup> *Ibid.*, p. 25.

<sup>28</sup> *Ibid.*, p. 69.

<sup>29</sup> *Essays on the Law of Nature*, ed. W. von Leyden (Oxford, 1954), p. 111. My italics. The *Essays*, part of the Lovelace Collection of Locke MSS in the Bodleian Library, Oxford, were first published in 1954.

<sup>30</sup> James Tyrrell, *A Brief Disquisition of the Law of Nature, According to the Principles and Method laid down in the Reverend Dr. Cumberland's . . . Latin Treatise on that Subject* (London, 1701), p. 7. Tyrrell corresponded frequently with Locke (sixty-three of his letters to Locke are extant in the Lovelace Collection), and it seems likely that he had seen a manuscript of Locke's *Essays* (cf. *Essays on the Law of Nature*, Introduction, pp. 87-88). Unabridged translations of Cumberland's *De Legibus Naturae* were published in 1727 by John Maxwell and in 1750 by John Towers.

<sup>31</sup> *A Brief Disquisition*, pp. 4, 5. In the *Essays*, Locke had presented at length the arguments against innate ideas in support of a conception of reason as the light rather than the law of nature, and Culverwel had used the same arguments ten years before in his *Discourse*.

<sup>32</sup> *A Brief Disquisition*, pp. 117, 114-15.

<sup>33</sup> *Ibid.*, p. 129. My italics.

<sup>34</sup> Samuel Parker, *A Demonstration of the Divine Authority of the Law of Nature, And of the Christian Religion* (London, 1681), p. 4. Cf. also pp. xix-xx, 1-4.

<sup>35</sup> *Ibid.*, p. 7.

<sup>36</sup> *Ibid.*, pp. 5, 7.

<sup>37</sup> *Ibid.*, pp. 20-21.

<sup>38</sup> *Ibid.*, p. 29.

<sup>39</sup> *Ibid.*, pp. 42 *et seq.*

<sup>40</sup> *The Works of Dr. John Tillotson* (10 vols., London, 1820), VIII 475. My italics.

<sup>41</sup> *Ibid.*, v 292. Tillotson also relates moral judgment to the affections (see *post*, pp. 83-84).

<sup>42</sup> Ralph Cudworth, *A Treatise concerning Eternal and Immutable Mo-*

ality (London, 1731), p. 17. Cf. also pp. 8, 9, 21. The *Treatise* was left in manuscript at the time of Cudworth's death in 1688 and was first printed in 1731.

<sup>43</sup> *Remarks upon an Essay concerning Humane Understanding* (London, 1697), pp. 4, 6. The passage to which Burnet is referring is as follows: "Moral good and evil . . . is only the conformity or disagreement of our voluntary actions to some law, whereby good or evil is drawn on us, from the will and power of the law-maker; which good and evil, pleasure or pain, attending our observance or breach of the law by the decree of the law-maker, is that we call reward and punishment" (Fraser, 1474). Cf. Locke's marginal comments on Burnet's *Remarks*: "It is not conscience that makes the distinction of good and evil, conscience only judging of an action by that which it takes to be [eternal] rule of good and evil. . . . Conscience is not the law of nature, but judging by that which is (by it) taken to be the law" (*ibid.*, p. 71n).

<sup>44</sup> *Third Remarks upon an Essay concerning Humane Understanding* (London, 1699), p. 4. The belief that the function of reason is not to constitute the law but to apprehend it was, of course, strongly supported by Locke's criticism of innate ideas (cf. *Essays on the Law of Nature*, pp. 137-45). "By reason here we do not mean some moral principles or any propositions laid up in the mind such that, if the actions of our life fitly correspond to them, these are said to be in accordance with right reason; for right reason of this sort is nothing but the law of nature itself already known, not the manner whereby, or that light of nature whereby, natural law is known; it is only the object of reason, not reason itself" (*ibid.*, p. 149). Reason is not the law of nature inscribed in the mind but the faculty which apprehends the law through sense-experience. It is remarkable that Locke's criticism of innate ideas was so easily juxtaposed in the literary mind with a conception of reason as not only apprehending but also constituting the law of nature. Indeed, both Clarke's *Discourse* and Hutcheson's *Inquiry* (in which the passions are supposed to constitute as well as apprehend the law) assume innate moral ideas or dispositions. Criticism of the *Essay* is not common. See *ante*, n. 25; see also *post*, Ch. 7, nn. 14, 44.

<sup>45</sup> *A Discourse Concerning the Unchangeable Obligations of Natural Religion*, pp. 32, 35.

<sup>46</sup> *Ibid.*, p. 68.

<sup>47</sup> *Ibid.*, p. 69.

<sup>48</sup> *Ibid.*, p. 4.

<sup>49</sup> *The Religion of Nature Delineated*, p. 23.

<sup>50</sup> *Ibid.*, p. 23. The distinction is not without obscurities. It was, however, widely recognized by Wollaston's contemporaries.

<sup>51</sup> *Ibid.*, p. 20.

<sup>52</sup> Sir Richard Blackmore, "An Essay upon the Laws of Nature," in *Essays upon Several Subjects* (London, 1716), pp. 365-66.

<sup>53</sup> See *ante*, Ch. 5, n. 9.

<sup>54</sup> John Clarke, *The Foundation of Morality in Theory and Practice* (York, ?1727), p. 10. Note that the author of an anonymous *Letter to Mr. John Clarke*. . . . *Wherein is shew'd, That he hath treated the Learned Dr. Clarke very unfairly* (London, 1727) argues that Samuel Clarke's conception of rational law does not exclude "all such Obligations, as arise from divine Authority" (p. 12). This, of course, obscures the primary issue,

which is not whether the will of God sanctions rational law, but whether reason or the divine will is the law.

<sup>55</sup> [Thomas Johnson], *An Essay on Moral Obligation* (London, 1731), p. 43.

<sup>56</sup> *The Insufficiency of the Law of Nature. A Sermon preach'd . . . April 4. 1731* (Cambridge, 1731), p. 18.

<sup>57</sup> *Ibid.*, p. 26. Unlike Locke, Johnson argues further that the law cannot be adequately apprehended by reason.

<sup>58</sup> *An Essay on Moral Obligation*, pp. 9–10. Cf. *The Insufficiency of the Law of Nature*, p. 21. See also [Samuel Wright], *Charity in all its Branches* (London, 1732), pp. iii–iv.

<sup>59</sup> On occasion — a fact that is indicative of the same shift of assumptions — the ideas of rational and affective law appear in juxtaposition. Cf. the *Enquiry into the Cause and Origin of Moral Evil* (1721), in which John Clarke, Dean of Salisbury, defines the moral value of an act in terms of reason while explaining its motive as a function of the affections: “in the Application of Things to each other, or in the Actions to be performed towards Persons, there must be an Agreeableness or Disagreeableness according as they are proportioned or disproportioned to the Constitution and Circumstances of them” (p. 150). By this “Faculty of Understanding, Men are enabled to see what is their Duty,” but only by “the Dispositions or Affections of their Mind” are they “inclined or have a natural Tendency to do those Things which they see to be true and right” (pp. 174–75, 175).

<sup>60</sup> Joseph Butler, *Fifteen Sermons* (London, 1729), p. xv. The Preface first appeared in the second edition of 1729.

<sup>61</sup> *Ibid.*, p. xvii.

<sup>62</sup> *Ibid.*, pp. 40–41.

<sup>63</sup> *Ibid.*, pp. 49, 49–50.

<sup>64</sup> John Balguy, *The Foundation of Moral Goodness*, in *A Collection of Tracts Moral and Theological* (London, 1734), p. 45.

<sup>65</sup> *Ibid.*, p. 75.

<sup>66</sup> *Ibid.*, p. 46.

<sup>67</sup> *Ibid.*, p. 67.

<sup>68</sup> *Ibid.*, p. 81.

<sup>69</sup> In *A Second Letter to a Deist* (1731), Balguy replies to Matthew Tindal's criticism of Clarke in *Christianity as old as the Creation* (1730). It is surprising that the epistemological theory of reason developed by the deists was not more closely related than it was to the concept of reason as a moral faculty. Of the deists, only Chubb and Tindal showed any considerable interest in the latter. Both accept the major principles of the rationalist position. Tindal qualifies Clarke's theory of reason only as it is not exclusive of revelation (*Christianity as old as the Creation* (London, 1730), pp. 353–432). Balguy supports Clarke against Tindal by arguing that reason, though independent as a law, is insufficient as a sanction.

<sup>70</sup> Catharine Cockburn, *Remarks upon some Writers in the Controversy concerning the Foundation of Moral Virtue and Moral Obligation*, in *The Works of Mrs. Catharine Cockburn* (2 vols., London, 1751), I 407. The Remarks were first published in *The History of the Works of the Learned in* 1743.

<sup>71</sup> *Ibid.*, p. 416. Cf. *Remarks upon the Principles and Reasonings of Dr. Rutherford's Essay on the Nature and Obligations of Virtue* (1747), *ibid.*, II



18. It is interesting to notice that Mrs. Cockburn supported Locke's *Essay* against Burnet. In order to reconcile Locke's conception of moral good and evil as the agreement or disagreement of an act to the will of God with the view (which she shares with Burnet) that moral good and evil are determined by the relation between the act and human reason, she draws a distinction between the ground and the sanction of the law. She attributes to Locke the belief that the sanction but not the ground of the law is furnished by the divine will, and justifies the *Essay*, on these terms, against Burnet (*A Defence of Mr. Locke's Essay of Human Understanding* . . . *In answer to some Remarks on that Essay* (1702), *Works*, I 60-62). Insofar as she attributes to Locke the belief that reason is precedent to will in defining moral law, she is mistaken, as the early *Essays* make quite clear. Her *Defence* is interesting, however, as an attempt to find common ground between Locke's critique of innate ideas and Clarke's theory of moral values inherent in the rational mind.

<sup>72</sup> Bernard Mandeville, *The Fable of the Bees*, ed. F. B. Kaye (2 vols., Oxford, 1924), I 323. Mandeville is thinking of Shaftesbury but his comment is equally applicable to Hutcheson or Hume.

## CHAPTER 7. THE SATISFACTION OF THE AFFECTIONS

<sup>1</sup> *Ibid.*, p. 323.

<sup>2</sup> Cf. Ronald S. Crane, *Philological Quarterly*, XI (1932), 204-5, 205-6, and "Suggestions toward a Genealogy of the 'Man of Feeling,'" *ELH*, I (1934), 205-30.

<sup>3</sup> *An Account of Virtue* (London, 1690), p. 6. The *Account of Virtue* was first published as *Enchiridion Ethicum* in 1668.

<sup>4</sup> *A Collection Of Several Philosophical Writings* (1662), pp. vii-viii, ix. More maintains, however, that reason "does not only more *distinctly* judge, but more *abstractedly*, than what . . . any Law of the Passions, can pretend to" (*An Account of Virtue*, p. 79).

<sup>5</sup> Isaac Barrow, *Theological Works*, ed. the Rev. Alexander Napier (9 vols., Cambridge, 1859), II 328, 373.

<sup>6</sup> *A Demonstration of the Divine Authority of the Law of Nature*, p. 29. My italics.

<sup>7</sup> *Works*, v 281, 282.

<sup>8</sup> John Hartcliffe, *A Treatise of Moral and Intellectual Virtues* (London, 1691), pp. 354, 353.

<sup>9</sup> *Ibid.*, p. 354.

<sup>10</sup> *Third Remarks*, pp. 7-8. My italics.

<sup>11</sup> *Ibid.*, p. 8. The publication of Shaftesbury's edition of Whichcote's *Sermons* in 1698 and of his *Inquiry* in 1699 may account for the differences between the *Second* and *Third Remarks*. Cf. Ernest Tuveson, "The Origins of the 'Moral Sense,'" *Huntington Library Quarterly*, XI (1948), 241-59. Tuveson suggests that Burnet's *Remarks* influenced the *Inquiry*. As A. O. Aldridge shows, however, the influence, if any, was in the other direction (*Philological Quarterly*, XXIX (1950), 266-67).

<sup>12</sup> It is no longer necessary to argue that this conception of moral law did not originate with Shaftesbury. In addition to the foregoing, cf. William Gould, *The Generosity of Christian Love* (London, 1676), p. 12; William Clagett, *Of the Humanity and Charity of Christians* (London, 1687), pp.

3-7; Henry Downes, *The Excellency of Publick Charity* (London, 1697), p. 3; Charles Hickman, *Fourteen Sermons Preach'd, at St. James's Church in Westminster* (London, 1700), pp. 271-72; Zachary Isham, *A Sermon Preached . . . At St. Bridget's Church. On Wednesday in Easter Week, MDCC* (London, 1700), pp. 4-5; Sir William Dawes, *Self-Love the Great Cause of Bad Times* (London, 1701), pp. 8, 9; Knightly Chetwood, *A Sermon Preach'd . . . in Christ's Church, on . . . April 5. 1708* (London, 1708), pp. 8-9.

<sup>13</sup> Anthony, Earl of Shaftesbury, *An Inquiry concerning Virtue, or Merit* (1699), in *Characteristicks* (3 vols., London, 1732), II 55.

<sup>14</sup> *Ibid.*, p. 44. Note that, despite his continued friendship with Locke, who had been his tutor, Shaftesbury repudiates Locke's negative theory of innate ideas as inconsistent with his own conception of the moral faculty. Cf. *Second Characters or The Language of Forms*, ed. Benjamin Rand (Cambridge, 1914), pp. 105-8. None of Shaftesbury's letters to Locke, of which several are extant, deals with this difference of opinion. This fact is explained by a letter to General James Stanhope dated November 7, 1709, in which Shaftesbury criticizes Locke's theory of the *tabula rasa*, remarking that, had "Mr. Locke been a *virtuoso*, he would not have philosophised thus." He then adds that, during Locke's lifetime, "I ever concealed my differences as much as possible" (*The Life, Unpublished Letters, and Philosophical Regimen of Anthony, Earl of Shaftesbury*, ed. Benjamin Rand (London, 1900), p. 416).

<sup>15</sup> *Philosophical Regimen*, p. 4.

<sup>16</sup> *Ibid.*, p. 9.

<sup>17</sup> This theory of the social affections and of their satisfaction in moral activity accounts for the concept of virtue as its own reward stated repeatedly in the *Characteristicks*. This doctrine, like the system of law from which it derives, did not originate with Shaftesbury. In a charity sermon preached in 1676, Richard Kidder observed that there is "a Delight and Joy that Accompanies doing good" and "a kind of sensuality in it"; Edward Young used similar language to describe the pleasures of virtue in a sermon first published nine years before the appearance of the *Characteristicks*: virtue affords "a Satisfaction not to be equalled by all the Joys of Sensuality" (Richard Kidder, *Charity Directed: or, The Way to Give Alms to the greatest Advantage* (London, 1676), p. 12; Edward Young, *Sermons on Several Occasions* (2 vols., London, 1706), I 392). See also Henry Lukin, *The chief Interest of Man* (London, 1665), pp. 38-39; John Sharp, *Sermon II. Preached at Bow-Church, On the Thirtieth of January, 1675, in Fifteen Sermons Preached on Several Occasions* (London, 1729), p. 64; Hezekiah Burton, *A Second Volume of Discourses* (London, 1685), pp. 515, 564-72; Gregory Hascard, *A Sermon Preached . . . on Tuesday in Easter week last* (London, 1685), pp. 7-8; Tillotson, *Works*, I 409-23, 424-42, II 205, v 286; Jeremy Collier, *Miscellanies: In Five Essays* (London, 1694), v 51-78; Edmund Calamy, *A Sermon Preach'd . . . Upon Monday, Febr. 20. 1698/9* (London, 1699), p. 18. After 1711, this idea became a commonplace.

<sup>18</sup> *Sensus Communis: An Essay on the Freedom of Wit and Humour* (1709), in *Characteristicks*, I 121.

<sup>19</sup> This conception of moral law governs Shaftesbury's criticism of

Hobbes, which differs in a most interesting way from that of Bramhall, Tenison, Eachard, or Lowde (see *ante*, pp. 66-70). Shaftesbury criticizes Hobbes, not for his definition of reason or the *law* of nature as a function of self-interest, but for his description of the *state* of nature, governed by the passions, as a state of war. Cf. Benjamin Whichcote, *Select Sermons* (Edinburgh, 1742), pp. xxv-xxvi. In this Shaftesbury differs radically from Hobbes' contemporaries. He himself comments on the fact: "*what is yet more unaccountable, is, that Men who profess a Religion where Love is chiefly enjoined; where the Heart is expressly called for, and the outward Action without that, is disregarded; where Charity (or Kindness) is made all in all; that Men of this Perswasion should combine to degrade the Principle of Good Nature*" (*ibid.*, pp. xxviii-xxix). Shaftesbury's Preface, which appeared in the first edition of 1698, is unsigned.

<sup>20</sup> *The Moralists, in Characteristicks*, II 192 and *passim*.

<sup>21</sup> *Ibid.*, pp. 205, 214-15.

<sup>22</sup> *Ibid.*, p. 300.

<sup>23</sup> *Ibid.*, pp. 292, 294.

<sup>24</sup> Studies of Shaftesbury's influence have in most cases been vitiated either by exaggeration or by the assumption that similarity is evidence of derivation. Cf. C. A. Moore, "Shaftesbury and the Ethical Poets in England, 1700-1760," *PMLA*, xxxi (1916), 264-325, and "The Return to Nature in English Poetry of the Eighteenth Century," *Studies in Philology*, xiv (1917), 243-91; William E. Alderman, "The Significance of Shaftesbury in English Speculation," *PMLA*, xxxviii (1923), 175-95, "Bibliographical Evidence of the Vogue of Shaftesbury in the Eighteenth Century," *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, xxi (1924), 57-70, "Shaftesbury and the Doctrine of Moral Sense in the Eighteenth Century," *PMLA*, xlvi (1931), 1087-94, "Shaftesbury and the Doctrine of Benevolence in the Eighteenth Century," *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, xxvi (1931), 137-59, "Shaftesbury and the Doctrine of Optimism in the Eighteenth Century," *ibid.*, xxviii (1933), 297-305. Note the review of two of the more recent of the Alderman articles by Ronald Crane in *Philological Quarterly*, xi (1932), 204-5, 205-6. There is valuable bibliographical material in Alfred Owen Aldridge, "Shaftesbury and the Deist Manifesto," *Transactions of the American Philosophical Society*, N.S. xli (1951), 297-385.

<sup>25</sup> Though Hutcheson is not primarily concerned with this aspect of the argument, he devoted the first of two papers which he published in the *London Journal* as an advertisement of the *Inquiry* to criticism of the belief that moral law derives from the will of God. Cf. *The London Journal*, November 14, 1724, and Aldridge, "A Preview of Hutcheson's Ethics," *Modern Language Notes*, lxi (1946), 153-61.

<sup>26</sup> [Francis Hutcheson], *An Essay on the Nature and Conduct of the Passions and Affections* (London, 1742), p. 218.

<sup>27</sup> *Ibid.*, p. 219.

<sup>28</sup> *A System of Moral Philosophy* (2 vols., London, 1755), I 57.

<sup>29</sup> *Ibid.*, p. 56.

<sup>30</sup> *Ibid.*, p. 38.

<sup>31</sup> *An Essay on the Passions*, p. 226.



<sup>32</sup> *An Inquiry into the Original of our Ideas of Beauty and Virtue* (London, 1725), p. 175.

<sup>33</sup> *Ibid.*, p. 101.

<sup>34</sup> *Ibid.*, pp. 123, 124.

<sup>35</sup> *Ibid.*, p. 143. Cf. also *A System of Moral Philosophy*, I 58.

<sup>36</sup> *An Essay on the Passions*, p. 203.

<sup>37</sup> *Ibid.*, p. 201.

<sup>38</sup> Cf. *A System of Moral Philosophy*, I 41ff.

<sup>39</sup> *An Inquiry*, p. 140. Cf. also *An Essay on the Passions*, p. 19.

<sup>40</sup> [David Hume], *A Treatise of Human Nature* (3 vols., London, 1739-40), II 244.

<sup>41</sup> *Ibid.*, pp. 244, 245.

<sup>42</sup> *Ibid.*, pp. 249-50. Cf. *ibid.*, III 1-36.

<sup>43</sup> *Essays Moral, Political, and Literary*, ed. T. H. Green and T. H. Grose (2 vols., London, 1898), II 161.

<sup>44</sup> With Hutcheson, Hume argues that the disposition is inherent. In this sense, Hume observes, "it is false, that we have no innate ideas. For it is evident our stronger perceptions or impressions are innate, and that natural affection, love of virtue, resentment, and all the other passions, arise immediately from nature" (*An Abstract of A Treatise of Human Nature*, ed. J. M. Keynes and P. Sraffa (Cambridge, 1938), p. 9).

<sup>45</sup> Hume recognizes that this is a definition of approbation and virtue in terms of interest. Like Shaftesbury, however, he distinguishes between the satisfactions which derive from "a concern for others" and those which derive from private "gratifications and enjoyments" (*An Enquiry concerning the Principles of Morals*, ed. L. A. Selby-Bigge (Oxford, 1902), p. 297; cf. also "Of the Dignity of Human Nature," in *Essays and Treatises on Several Subjects* (2 vols., London, 1767), I 94-95).

<sup>46</sup> The continuation of this process of analysis into a further stage led to a breakdown of the whole concept of absolute morality and to the development of a theory of moral value as derivable from the effects rather than the motives of an act. This result was, of course, implicit in the very attempt to define moral law in terms of the agent. If the divine will is rejected as the standard of the law, there remains no escape from tautology or circularity but to define it either in terms of some other extrinsic principle or in terms of utility. In practice, the belief that an act is good if it is useful occasionally accompanies the belief that obligation is created by reason or divine will: "Virtue, as in its obligation it is the will of God, discovered by natural reason, and thus has the force of a law; so in the matter of it, it is nothing else but doing of good, either to oneself or others; and the contrary hereunto, vice, is nothing else but doing of harm." Thus, "justice, truth, and mercy, [are determined] by the good or evil they are likely to produce" (an entry, under date of 1661, in Locke's *Commonplace Book*, quoted by Lord King, *The Life of John Locke* (2 vols., London, 1830), II 94). But this is less common than the association of a utilitarian criterion of virtue with the belief that obligation is created by the passions or affections. Hutcheson, for example, supposes that "*that Action is best, which accomplishes the greatest Happiness for the greatest Numbers; and that, worst, which, in like manner, occasions Misery*" (*An Inquiry*, p. 164). Cf. Hume, *An Enquiry*



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*concerning the Principles of Morals*, p. 279. Mandeville's *Fable of the Bees* is an early statement of the utilitarian position as applied consistently not only to the criterion of virtue but also to its motives and obligation, a position that was restated, so deceptive were the several ironies of the *Fable*, in a number of the replies. Despite its scattered appearance elsewhere later in the century, this position was not, however, fully developed until it was adopted and reformulated by Bentham and the Mills.

### CONCLUSIONS: WHATEVER IS, IS RIGHT

<sup>1</sup> *Genesis* 1.27, 31; 3.19.

<sup>2</sup> *Ibid.*, 1.11, 12; 3.17, 18.



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